

STIC Database Tracking Number: 312227

**To:** David Clark  
**Location:** KNX 5D30  
**Art Unit:** 3628  
**Date:** 10/23/09  
**Case Serial Number:** 10/784273

**From:** Heidi Myers  
**Location:** EIC3600, KNX 4A70  
**Phone:** (571) 272-2446  
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## Search Notes

10/784273              Allowance Search  
METHOD FOR CONTROLLING VEHICULAR ELECTRIC SYSTEM

Dear Examiner Clark:

Please find attached the results of your search for the above-referenced case. The search was conducted in the Business Methods Template files in Dialog. As required for an Allowance Search, I also searched *Financial Times* and the *Internet & Personal Computing Abstracts* in EbscoHost.

I have listed a *potential* reference of interest in the first part of the search results. However, please be sure to scan through the entire report. There may be additional references that you might find useful.

If you have any questions about the search, or need a refocus, please do not hesitate to contact me.

Thank you for using the EIC, and we look forward to your next search!

*\*EIC-Searcher identified "potential references of interest" are selected based upon their apparent relevance to the terms/concepts provided in the examiner's search request.*

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## I. Potential References of Interest

18/3,K/11 (Item 11 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00942223 \*\*Image available\*\*

METHOD FOR UTILIZING THE ELECTRICAL OUTPUTS OF FUEL CELL POWERED VEHICLES  
SISTÈME ET PROCÉDÉ PERMETTANT L'ACHAT ET LA VENTE EN TEMPS RÉEL  
D'ÉLECTRICITÉ GÉNÉRÉE PAR DES VÉHICULES ALIMENTÉS PAR PILE À  
COMBUSTIBLE

Patent Applicant/Assignee:

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1B8, CA, CA (Residence), CA (Nationality), (For all designated states  
except: US)

Patent Applicant/Inventor:

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(Residence), CA (Nationality), (Designated only for: US)  
HARDWICK Aaron, 2 Ormond Street South, Unit 2, Thorold, Ontario L2V 1Y1,  
CA, CA (Residence), CA (Nationality), (Designated only for: US)

Legal Representative:

BERESKIN & PARR (agent), 40 King Street West, 40th Floor, Toronto,  
Ontario M5H 3Y2, CA,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200274573 A2-A3 20020926 (WO 0274573)

Application: WO 2002CA316 20020307 (PCT/WO CA0200316)

Priority Application: US 2001808042 20010315

Parent Application/Grant:

Related by Continuation to: US 2001808042 20010315 (CON)

Designated States:

(Protection type is "patent" unless otherwise stated - for applications  
prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UG US UZ VN YU ZA ZM ZW

(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR

(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG

(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW

(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 17993

Main International Patent Class (v7): B60L-011/18

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... first embodiment, the present invention relates to a method for  
enabling the real time buying and selling of electrical power between at  
least one fuel cell power unit, which can be a  
stationary power unit or a power unit of a  
vehicle, and an energy service provider. The method comprises

providing a docking station, which has connections to the fuel cell powered vehicle for the supply of a fuel and for transfer of electricity to the power grid. The method farther comprises determining the current cost of fuel and price paid for generating electricity.

Based at least on the cost of fuel and price paid for generating electricity, the method farther comprises determining whether to make the fuel cell powered vehicle available for generation of electricity. In cases where the fuel is consumed by the vehicle and electricity generated by the vehicle, the method further comprises collecting data on the quantity of fuel consumed and amount of electricity generated, calculating the cost of the fuel and the value of the - 12 electricity generated, and providing a debit charge for the cost of fuel consumed and a credit charge for the value of electricity generated. This and other aspects of the invention envisage that the docking station... connections to at least one vehicle for the supply of a fuel and for transfer of electricity;

(H) handing over control of the fuel cell power unit of each vehicle to an energy service provider;

(iii) the energy service provider determining when to operate the fuel cell power unit of each vehicle and setting the load level for each fuel cell power unit; and

(iv) when fuel is consumed by each vehicle and electricity generated by each vehicle, collecting data on the quantity of fuel consumed and amounts of electricity generated, and calculating the cost of the fuel and the value of the electricity generated....

## II. Inventor Search Results from Dialog

### Patent Files

File 371:French Patents 1961-2002/BOPI 200209  
(c) 2002 INPI. All rts. reserv.  
File 344:Chinese Patents Abs Jan 1985-2006/Jan  
(c) 2006 European Patent Office  
File 347:JAPIO Dec 1976-2009/Jun(Updated 090923)  
(c) 2009 JPO & JAPIO  
File 350:Derwent WPIX 1963-2009/UD=200967  
(c) 2009 Thomson Reuters  
File 349:PCT FULLTEXT 1979-2009/UB=20091015|UT=20091008  
(c) 2009 WIPO/Thomson  
File 348:EUROPEAN PATENTS 1978-200943  
(c) 2009 European Patent Office

Set	Items	Description
S1	2694	AU=( OBAYASHI K? OR OBAYASHI, K? OR OBAYASHI (2N)(K OR KAZ-UYOSHI))
S2	4587	AU=( TANI K? OR TANI, K? OR TANI (2N)(K OR KEISUKE))
S3	40	S1 AND S2
S4	31	S3 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)
S5	22	S4 AND BATTER?
S6	21	S5 AND (HYBRID OR ELECTRIC?)
S7	19	S6 AND (CHARG? OR DISCHARG?)

7/5/7 (Item 7 from file: 347)  
DIALOG(R)File 347:JAPIO  
(c) 2009 JPO & JAPIO. All rts. reserv.  
08148148 \*\*Image available\*\*  
METHOD FOR MANAGING ELECTRIC SYSTEM FOR VEHICLE

PUB. NO.: 2004-260908 [JP 2004260908 A]  
PUBLISHED: September 16, 2004 (20040916)  
INVENTOR(s): OBAYASHI KAZUYOSHI  
TANI KEISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2003-047888 [JP 200347888]  
FILED: February 29, 2003 (20030225)  
INTL CLASS: B60L-011/14; B60K-006/04; B60K-025/00;  
B60L-011/18; B60R-016/02; H01M-010/44

### ABSTRACT

PROBLEM TO BE SOLVED: To provide a method for managing an electric system for a vehicle which can improve a fuel cost by properly calculating the energy cost of an on-vehicle battery and managing the power cost of a vehicle electric system by properly utilizing this battery energy cost.

SOLUTION: The method for managing the electric system for the vehicle includes the steps of deciding a difference between a power generation cost

of a plurality of power energy supply sources and a cost of electric energy stored in the battery, and deciding the supply source of the charging power of the battery and the amount of the supply power in response to the present remaining capacity of the battery (S1010, S1012).

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7/5/8 (Item 8 from file: 347)  
DIALOG(R)File 347:JAP10  
(c) 2009 JPO & JAP10. All rts. reserv.  
08141705 \*\*Image available\*\*  
REGENERATIVE BRAKING DEVICE FOR VEHICLE

PUB. NO.: 2004-254465 [JP 2004254465 A]  
PUBLISHED: September 09, 2004 (20040909)  
INVENTOR(s): OBAYASHI KAZUYOSHI  
TANI KEISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2003-044205 [JP 200344205]  
FILED: February 21, 2003 (20030221)  
INTL CLASS: H02P-009/04; B60K-025/00; B60R-016/02;  
B60R-016/04; B60T-003/00

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide a regenerative braking device for a vehicle that can restrain an adverse effect to a battery by properly treating surplus power while keeping a simple device constitution.

SOLUTION: In the regenerative braking of the vehicle, when the surplus power exceeding the preferred charging power of the battery 103 is generated as the result of regenerative generation, the surplus power is consumed by increasing power consumptions of a plurality of electric loads selected from among electric loads 11a1 to 11e1.

COPYRIGHT: (C)2004,JPO&NCIPI

7/5/9 (Item 9 from file: 347)  
DIALOG(R)File 347:JAP10  
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08137140 \*\*Image available\*\*  
POWER SUPPLY DEVICE FOR VEHICLE

PUB. NO.: 2004-249900 [JP 2004249900 A]  
PUBLISHED: September 09, 2004 (20040909)  
INVENTOR(s): OBAYASHI KAZUYOSHI  
TANI KEISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2003-044209 [JP 200344209]  
FILED: February 21, 2003 (20030221)  
INTL CLASS: B60R-016/02; B60L-001/00; B60R-016/04;  
H02J-007/16; H02P-009/14

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide a power supply device for a vehicle capable of managing control of production of power and power consumption in an excellent state, while holding voltage of a power supply line within a prescribed reference voltage range.

SOLUTION: This device is provided with a battery 103 for supplying power to electric load 111a1 to 111e3 through the power supply line 108, a generator 102 for supplying power to the battery 103 and the electric load 111a1 to 111e3 through the power supply line 108, and a control device 105 for controlling generated power of the generator 102 and power consumption of the electric load 111a1 to 111e3. A charging/discharging power range of the battery 103 corresponding to a voltage command value range of the power supply line 108 is predicted from the range. The generated power of the generator 102 or the power consumption of the electric load 111a1 to 111e3 is adjusted so that actual charging/discharging power may be in the range.

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7/5/16 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0014675272 - Drawing available

WPI ACC NO: 2005-022855/200503

XRPX Acc No: N2005-019719

Power control system for e.g. automobile, has controller and DC/DC converter transferring power between two supply lines when specific condition based on one of capacitor energy value and generation capacity margin is satisfied

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: OBAYASHI K; TANI K

Patent Family (4 patents, 3 countries)

Patent	Application	Number	Kind	Date	Number	Kind	Date	Update
FR 2856109	A1	20041217	FR	20046534		A	20040616	200503 B
JP 2005009320	A	20050113	JP	2003171064		A	20030616	200505 E
DE 102004028713	A1	20050210	DE	102004028713		A	20040614	200512 E
JP 4224781	B2	20090218	JP	2003171064		A	20030616	200914 E

Priority Applications (no., kind, date): JP 2003171064 A 20030616

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
FR 2856109	A1	FR	57	12	
JP 2005009320	A	JA	22		
JP 4224781	B2	JA	21		Previously issued patent JP 2005009320

Alerting Abstract FR A1

NOVELTY - The system has a calculation unit calculating a margin up to a maximum generation capacity of a main generator based on factors comprising an energy consumption value of electrical devices and an admissible power generation value of the generator. A controller and a DC/DC converter (31, 32) transfer power between two supply lines when a specific condition

based on one of capacitor energy value and the margin is satisfied.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for controlling power in a vehicle.

USE - Used for controlling power in a vehicle e.g. automobile, industrial vehicle, agricultural machine and two-wheeler.

ADVANTAGE - The system is capable of simultaneously supplying turbo compressor and the electrical devices loaded on the vehicle in a stable manner.

DESCRIPTION OF DRAWINGS - The drawing shows a schematic view of a power control system for vehicles.

L1, L2 Supply lines

11 Rotating electrical machine

12 Capacitor

22 Battery

15 Turbo compressor

21 Vehicle

23 Main generator

31 Controller

32 DC/DC converter

Title Terms/Index Terms/Additional Words: POWER; CONTROL; SYSTEM; AUTOMOBILE; DC; CONVERTER; TRANSFER; TWO; SUPPLY; LINE; SPECIFIC; CONDITION; BASED; ONE; CAPACITOR; ENERGY; VALUE; GENERATE; CAPACITY; MARGIN; SATISFY

#### Class Codes

International Classification (Main): B60R-016/02

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/12	A	I	R	20060101
F02B-0037/10	A	I	F	20060101
F02B-0037/10	A	I		20060101
F02B-0037/14	A	I		20060101
F02B-0039/10	A	I	L	B
F02B-0039/10	A	I		R
F02B-0039/16	A	I		R
F02B-0067/04	A	N		R
F02D-0029/06	A	I	L	B
F02D-0029/06	A	I	L	R
H02J-0007/00	A	I	L	B
H02J-0007/00	A	I	L	R
H02S-0007/02	A	I	L	B
H02J-0007/02	A	I	L	R
H02P-0009/04	A	I	L	B
H02P-0009/04	A	I	L	R
B60L-0011/02	C	I		R
F02B-0037/04	C	I	F	B
F02B-0037/04	C	I		R
F02B-0037/12	C	I		R
F02B-0039/00	C	I		R
F02B-0039/02	C	I	L	B
F02B-0039/02	C	I		R
F02B-0067/04	C	N		R
F02D-0029/06	C	I	L	B
F02D-0029/06	C	I	L	R
H02J-0007/00	C	I	L	B
H02J-0007/00	C	I	L	R

H02J-0007/02 C I L B 20090101  
 H02J-0007/02 C I L R 20060101  
 H02P-0009/04 C I L B 20090101  
 H02P-0009/04 C I L R 20060101  
 ECLA: B60L-011/12, F02B-037/10, F02B-037/14, F02B-039/10, F02B-039/16  
 ICO: R02B-067:04

JP Classification

FI Term	Facet	Rank	Type
F02B-037/10	Z	A	main
F02B-039/10		B	secondary
F02D-029/06	E	B	secondary
H02J-007/00	P	B	secondary
H02J-007/02	F	B	secondary
H02P-009/04	M	B	secondary
F02B-037/10	Z		
F02B-039/10			
F02D-029/06	E		
H02J-007/00	P		
H02J-007/02	F		
H02P-009/04	M		

F-Term View Point Additional  
Theme + Figure Code

3G005		
3G093		
5G003		
5G503		
5H590		
3G093	AA01	
5G003	AA07	
5G503	AA07	
5H590	AA10	
5H590	AA15	
3G093	AB02	
5G003	BA02	
5G503	BA02	
5G503	BB01	
5G503	BB03	
5H590	CA07	
5G503	CA12	
5H590	CA14	
5H590	CA23	
5H590	CA28	
5H590	CA30	
5H590	CC01	
5H590	CD01	
5H590	CD10	
5H590	CE05	
5H590	CE10	
5G003	DA04	
5G003	DA17	
3G093	DB19	
3G093	DB28	
5G503	EA05	
5H590	EA10	
5H590	EA13	

3G005	EA20
3G093	EB09
5H590	EB12
3G005	FA05
3G005	FA06
5G503	FA06
5H590	FA08
5H590	FC11
5H590	FC14
5G503	GA01
5H590	GA02
5G503	GB04
5G503	GD06
3G005	GD17
5H590	HA04
3G005	HA15
3G005	JA39
3G005	JB02
3G005	JB26

File Segment: EngPI; EPI;  
 DWPI Class: X22; Q17; Q52  
 Manual Codes (EPI/S-X): X22-F04

7/5/17 (Item 8 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
 (c) 2009 Thomson Reuters. All rts. reserv.  
 0014469359 - Drawing available  
 WPI ACC NO: 2004-660778/200464  
 XRFX Acc No: N2004-523144  
 Series-hybrid vehicle electric power generation controlling  
 method, involves receiving power rate of onboard electrical loads and  
 determining power supply distribution to onboard battery based on  
 information on power generation costs  
 Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)  
 Inventor: OBAYASHI K; TANI K; TANI Y

Patent Family (6 patents, 4 countries)

Patent	Application					
Number	Kind	Date	Number	Kind	Date	Update
US 20040164616	A1	20040826	US 2004784273	A	20040224	200464 B
DE 102004009146	A1	20040902	DE 102004009146	A	20040225	200464 E
FR 2851516	A1	20040827	FR 20041831	A	20040224	200464 E
JP 2004260908	A	20040916	JP 200347888	A	20030225	200464 E
JP 2006339165	A	20061214	JP 200347888	A	20030225	200701 E
JP 3896973	B2	20070322	JP 2006168703	A	20060619	
JP 3896973	B2	20070322	JP 200347888	A	20030225	200723 E

Priority Applications (no., kind, date): JP 200347888 A 20030225; JP 2006168703 A 20060619

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes	
US 20040164616	A1	EN	16	9		
JP 2004260908	A	JA	17			
JP 2006339165	A	JA	15		Division of application	JP 200347888
JP 3896973	B2	JA	14		Previously issued patent	JP 2004260908

Alerting Abstract US A1

NOVELTY - The method involves obtaining information on power generation costs. A power supply distribution of the power sources is adjusted based on the information on the power generation costs and the available power supplies from the power sources. A power rate of the onboard electrical loads is received. A power supply distribution to the onboard battery is determined based on the obtained information.

USE - Used for controlling power generation for a electric system of a series-hybrid vehicle having multiple power sources.

ADVANTAGE - The determination of the onboard battery power supply distribution allows effective power generation cost management of the electric system, thereby improving the fuel economy of the vehicle.

DESCRIPTION OF DRAWINGS - The drawing shows a vehicular electric system.

100 Belt  
101 Engine  
102 Generator  
103 Battery  
108 Power supply lines

Title Terms/Index Terms/Additional Words: SERIES; HYBRID; VEHICLE; ELECTRIC; POWER; GENERATE; CONTROL; METHOD; RECEIVE; RATE; LOAD; DETERMINE; SUPPLY; DISTRIBUTE; BATTERY; BASED; INFORMATION; COST

Class Codes

International Classification (Main): B60R-016/02

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60R-0025/00	A	I	L	B	20060101
B60R-0025/00	A	I	L	R	20060101
B60R-0006/04	A	I		R	20060101
B60L-0011/14	A	I	L	B	20060101
B60L-0011/14	A	I	L	R	20060101
B60L-0011/18	A	I	L	B	20060101
B60L-0011/18	A	I		R	20060101
B60L-0015/20	A	I		R	20060101
B60R-0016/02	A	I	F	R	20060101
B60R-0016/033	A	I	L	B	20060101
B60R-0016/033	A	I	L	R	20060101
B60T-0001/10	A	I		R	20060101
B60T-0013/58	A	I		R	20060101
B60W-0010/08	A	I	L	B	20060101
B60W-0010/08	A	I	L	R	20060101
B60W-0010/18	A	I	L	B	20060101
B60W-0010/18	A	I	L	R	20060101
B60W-0010/26	A	I	F	B	20060101
B60W-0010/26	A	I	L	R	20060101
B60W-0010/26	A	N	L	B	20060101
B60W-0020/00	A	I	L	B	20060101
B60W-0020/00	A	I	L	R	20060101
B60W-0020/00	A	N	L	B	20060101
H01M-0010/44	A	I	L	B	20060101
H01M-0010/44	A	I	L	R	20060101
H01M-0010/48	A	I	F	B	20060101
H02J-0007/00	A	I	L	B	20060101
H02J-0007/00	A	N		R	20060101

H02J-0007/14	A	N	R	20060101	
H02J-0007/34	A	I	L	B	20060101
B60K-0025/06	C	I	L	B	20060101
B60K-0025/06	C	I	L	R	20060101
B60K-0006/06	C	I		R	20060101
B60L-0011/14	C	I	L	B	20060101
B60L-0011/14	C	I	L	R	20060101
B60L-0011/18	C	I	L	B	20060101
B60L-0011/18	C	I		R	20060101
B60L-0015/20	C	I		R	20060101
B60R-0016/02	C	I	F	R	20060101
B60R-0016/03	C	I	L	B	20060101
B60R-0016/03	C	I	L	R	20060101
B60T-0001/00	C	I		R	20060101
B60T-0013/10	C	I		R	20060101
B60W-0010/08	C	I	L	B	20060101
B60W-0010/08	C	I	L	R	20060101
B60W-0010/18	C	I	L	B	20060101
B60W-0010/18	C	I	L	R	20060101
B60W-0010/26	C	I	F	B	20060101
B60W-0010/26	C	I	L	R	20060101
B60W-0010/26	C	N	L	B	20060101
B60W-0020/00	C	I	L	B	20060101
B60W-0020/00	C	I	L	R	20060101
B60W-0020/00	C	N	L	B	20060101
H01M-0010/42	C	I	F	B	20060101
H01M-0010/42	C	I	L	B	20060101
H01M-0010/42	C	I	L	R	20060101
H02J-0007/00	C	I	L	B	20060101
H02J-0007/00	C	N		R	20060101
H02J-0007/14	C	N		R	20060101
H02J-0007/34	C	I	L	B	20060101

ECLAS: B60K-006/46, B60L-011/18L, B60L-011/18M, B60L-015/20E, B60T-001/10, B60T-013/58C1, B60W-010/06, B60W-010/18, B60W-010/26, B60W-020/00

ICO: T02J-007:00G2, T02J-007:14E  
 US Classification, Current Main: 307-018000; Secondary: 903-925000, 903-940000, 903-941000, 903-942000, 903-943000, 903-947000  
 US Classification, Issued: 30718

#### JP Classification

FI Term	Facet	Rank	Type
B60K-025/00	C		
B60K-006/04	320		
B60K-006/04	330		
B60K-006/04	370		
B60L-011/14			
B60R-016/02	645	Z	
B60R-016/02	670	B	
B60R-016/02	670	D	
H01M-010/44	A		
H01M-010/48	P		
H02J-007/00	P		
B60L-011/18	A	ZHV	
H02J-007/34	C	ZHV	

F-Term View Point Additional  
 Theme + Figure Code

3D015	
3D035	
3D037	
3D202	
5G003	
5G503	
5H030	
5H115	
5G003	AA07
5H030	AA09
5H030	AS08
5G003	BA01
5H030	BB01
5H030	BB10
5G003	DA04
5G003	FA06
5H030	FF41
5H115	PA11
5H115	PA12
5H115	PC06
5H115	PG04
5H115	PI11
5H115	PI16
5H115	PI22
5H115	PI29
5H115	PO02
5H115	PO17
5H115	PU01
5H115	PU23
5H115	PU25
5H115	QI04
5H115	QN03
5H115	RE03
5H115	SE04
5H115	SE05
5H115	SE06
5H115	TE02
5H115	TE03
5H115	TI01
5H115	TI05
5H115	TI06
5H115	TI10
5H115	TO12
5H115	TO14
5H115	TO23
5H115	TO30

File Segment: EngPI; EPI;

DWPI Class: U24; X16; X21; Q14; Q13; Q17

Manual Codes (EPI/S-X): U24-H; X16-G02; X21-A01D3; X21-B01A1A; X21-B01B

7/5/18 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0014465116 - Drawing available

WPI ACC NO: 2004-656503/200464

XRXPX Acc No: N2004-519558

Vehicle-mounted power supply determines charging and discharging power range of battery supplying power to current consumers through power distribution line, based on input parameter relevant to line voltage control command

Patent Assignee: NIPPONDENSO CO LTD (NPDE)

Inventor: OBAYASHI K; TANI K

Patent Family (2 patents, 1 countries)

Patent	Application	Number	Kind	Date	Number	Kind	Date	Update
JP 2004249900	A	20040909	JP	200344209		A	20030221	200464 B
JP 4292824	B2	20090708	JP	200344209		A	20030221	200945 E

Priority Applications (no., kind, date): JP 200344209 A 20030221

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
JP 2004249900	A	JA	15	7	
JP 4292824	B2	JA	15		Previously issued patent JP 2004249900

Alerting Abstract JP A

NOVELTY - A controller (105) determines the charging and discharging power range of a battery (103) that supplies power received from a generator (102) to current consumers (111a1-111e3) through a power distribution line (108), based on the input parameter relevant to the control command of voltage in the power distribution line and output parameter relevant to the charging and discharging power of the battery.

USE - For supplying power to consumers through power distribution line connected to generator mounted in vehicle.

ADVANTAGE - Enables managing the power consumption amount of the current consumers effectively, while controlling the charging and discharging characteristics of the vehicle-mounted battery.

DESCRIPTION OF DRAWINGS - The figure shows a block diagram of the electronic control unit of the vehicle. (Drawing includes non-English language text).

102 generator

103 battery

105 controller

108 power distribution line

111a1-111e3 current consumers

Title Terms/Index Terms/Additional Words: VEHICLE; MOUNT; POWER; SUPPLY; DETERMINE; CHARGE; DISCHARGE; RANGE; BATTERY; CURRENT; CONSUME; THROUGH; DISTRIBUTE; LINE; BASED; INPUT; PARAMETER; RELEVANT; VOLTAGE; CONTROL; COMMAND

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0061/00 A I L R 20060101

B60R-0016/02 A I L R 20060101

B60R-0016/03 A I F R 20060101

B60R-0016/04 A I L R 20060101

H02J-0007/16 A I L R 20060101

H02P-0009/14 A I L R 20060101

B60L-0001/00	A	I	L	B	20060101
B60R-0016/02	A	I	L	B	20060101
B60R-0016/03	A	I	F	B	20060101
B60R-0016/04	A	I	L	B	20060101
H02J-0007/16	A	I	L	B	20060101
H02P-0009/14	A	I	L	B	20060101
B60L-0001/00	C	I	L	R	20060101
B60R-0016/02	C	I	L	R	20060101
B60R-0016/03	C	I	F	R	20060101
B60R-0016/04	C	I	L	R	20060101
H02J-0007/16	C	I	L	R	20060101
H02P-0009/14	C	I	L	R	20060101
B60L-0001/00	C	I	B		20060101
B60R-0016/02	C	I	B		20060101
B60R-0016/03	C	I	B		20060101
B60R-0016/04	C	I	B		20060101
H02J-0007/16	C	I	B		20060101
H02P-0009/14	C	I	B		20060101

#### JP Classification

FI Term	Facet	Rank	Type
B60L-001/00	L		
B60L-001/00	L	B	secondary
B60R-016/02	645	Z	
B60R-016/02	645	Z	B secondary
B60R-016/02	670	J	
B60R-016/02	670	J	B secondary
B60R-016/02	670	S	
B60R-016/02	670	S	A main
B60R-016/04	S	ZHV	
B60R-016/04	W		B secondary
H02J-007/16	Y		
H02J-007/16	Y		B secondary
H02P-009/14	H		
H02P-009/14	H		B secondary

#### F-Term View Point Additional

Theme	+ Figure	Code
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3D015		
5G060		
5H115		
5H590		
5G060	AA05	
5H590	AA15	
5H590	AB04	
5H590	AB05	
5H590	CA07	
5G060	CA21	
5H590	CA23	
5H590	CE05	
5G060	DB07	
5H590	DD64	
5H590	EA20	
5H590	EB12	
5H590	EB14	
5H590	FA06	
5H590	GA02	

5H590	GA06
5H590	GB05
5H590	HA02
5H590	HA04
5H590	HA06
5H590	HA18
5H590	HA27
5H590	JA19
5H590	JB02
5H115	PA11
5H115	PA15
5H115	PC06
5H115	PG04
5H115	PI13
5H115	PI22
5H115	PO06
5H115	PU01
5H115	PU26
5H115	QA00
5H115	QN03
5H115	SE02
5H115	SE06
5H115	SJ11
5H115	TI02
5H115	TU06
5H115	TU17

File Segment: EngPI; EPI;

DWPI Class: X13; X16; X22; Q14; Q17

Manual Codes (EPI/S-X): X13-G02A; X16-G02C; X22-F01A; X22-F02

7/5/19 (Item 10 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0014426972 - Drawing available

WPI ACC NO: 2004-617254/200460

XRXPX Acc No: N2004-488188

Regenerative braking device e.g. for electric and/or hybrid vehicle, has a generator driven by a motor to carry out vehicle braking by generating regenerative power during a vehicle's braking process

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: OBAYASHI K; TANI K

Patent Family (5 patents, 3 countries)

Patent				Application			
Number	Kind	Date	Number	Kind	Date	Update	
DE 102004007985	A1	20040902	DE 102004007985	A	20040218	200460	B
JP 2004254465	A	20040909	JP 200344205	A	20030221	200460	E
US 20040239181	A1	20041202	US 2004780768	A	20040219	200481	E
US 6908162	B2	20050621	US 2004780768	A	20040219	200543	E
JP 4131395	B2	20080813	JP 200344205	A	20030221	200855	E

Priority Applications (no., kind, date): JP 200344205 A 20030221

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
DE 102004007985	A1	DE	15	5	

Alerting Abstract DE A1

NOVELTY - Power is fed to electrical charges (111a1-111e3) through a battery (103) and a generator (102) to carry out vehicle braking. Charge-control devices (110a-110e) control the electrical charges and carry out a calculation, detection and assessment regarding the generation of excess energy to act as regenerative power that exceeds a maximum charging amount to be retained by the battery.

USE - For recovering/regenerating decelerating energy for a vehicle with the help of an electric motor to improve the level of a vehicle's fuel effectiveness and to generate friction braking force.

ADVANTAGE - This device has a simple structure. Excess energy is applied in a suitable manner.

DESCRIPTION OF DRAWINGS - The drawing shows a block connection diagram to represent a motor vehicle's electrical system with an electrical vehicle charge drive control device. (Drawing includes non-English language text).

101 Motor

102 Generator

103 Battery

107 Battery current sensor

110a-110e Charge-control devices

111a1-111e3 Electrical charges

Title Terms/Index Terms/Additional Words: REGENERATE; BRAKE; DEVICE; ELECTRIC; HYBRID; VEHICLE; GENERATOR; DRIVE; MOTOR; CARRY; GENERATE; POWER; PROCESS

Class Codes

International Classification (Main): B60L-007/10

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60K-0025/00	A	I	L	B	20060101
B60K-0025/00	A	I	L	R	20060101
B60L-0007/26	A	I		R	20060101
B60R-0016/02	A	I	F	R	20060101
B60R-0016/033	A	I	L	B	20060101
B60R-0016/033	A	I	L	R	20060101
B60R-0016/04	A	I	L	B	20060101
B60R-0016/04	A	I	L	R	20060101
B60T-0008/17	A	I	L	B	20060101
B60T-0008/17	A	I	L	R	20060101
H02P-0009/04	A	I	F	B	20060101
H02P-0009/04	A	I	L	R	20060101
B60K-0025/00	C	I	L	B	20060101
B60K-0025/00	C	I	L	R	20060101
B60L-0007/00	C	I		R	20060101
B60R-0016/02	C	I	F	R	20060101
B60R-0016/03	C	I	L	B	20060101
B60R-0016/03	C	I	L	R	20060101
B60R-0016/04	C	I	L	B	20060101
B60R-0016/04	C	I	L	R	20060101
B60T-0008/17	C	I	L	B	20060101

B60T--0008/17 C I L R 20060101  
H02P--0009/04 C I F B 20060101  
H02P--0009/04 C I L R 20060101

ECLA: B60L-007/26

US Classification, Current Main: 303-152000; Secondary: 303-020000  
US Classification, Issued: 303152, 30320, 303152

JP Classification

FI Term	Facet	Rank	Type
H02P-009/04	L	A	main
B60K-025/00	C	B	secondary
B60R-016/02	645	Z	secondary
B60R-016/02	670	D	secondary
B60R-016/04		S	secondary
B60T-008/00		E	secondary
B60K-025/00	C		
B60R-016/02	645	Z	
B60R-016/02	670	D	
B60R-016/04		S	
B60T-008/00		E	
B60T-008/17		C	
H02P-009/04	L		

F-Term View Point Additional

Theme + Figure Code

3D015		
3D037		
3D046		
3D246		
5H590		
5H590	AA02	
5H590	AB04	
3D246	BA02	
3D046	BB03	
5H590	CA09	
5H590	CA23	
3D046	CC02	
5H590	CE05	
3D246	DA01	
3D246	EA02	
3D246	EA05	
3D246	EA07	
3D246	EA20	
5H590	EB04	
5H590	FA05	
3D246	GA04	
5H590	GA06	
3D246	GA11	
3D246	GA14	
3D246	GA20	
3D246	GA21	
3D246	GB39	
3D046	GG02	
3D046	GG11	
3D246	HA01	B
3D246	HA02	A
3D246	HA03	A

5H590	HA06	
3D246	HA26	A
3D246	HA26	B
3D246	HA31	A
3D246	HA31	B
3D246	HA32	A
3D246	HA32	C
3D246	HA38	A
3D246	HA38	B
3D246	HA51	A
3D246	HA52	B
3D046	HH02	
3D046	HH11	
3D046	HH12	
3D046	HH15	
3D046	HH52	
3D246	JB01	
3D246	JB10	
3D246	JB43	
3D246	KA19	
3D246	LA52	Z

File Segment: EngPI; EPI;

DWPI Class: X21; X22; Q14; Q18

Manual Codes (EPI/S-X): X21-A01D; X21-A01F; X21-A03C; X22-P04

7/5/1 (Item 1 from file: 347)

DIALOG(R)File 347:JAPIO

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09285172 \*\*Image available\*\*

VEHICULAR POWER SYSTEM

PUB. NO.: 2007-327337 [JP 2007327337 A]

PUBLISHED: December 20, 2007 (20071220)

INVENTOR(s): TANI KEISUKE

OBAYASHI KAZUYOSHI

SENDA TAKASHI

YAMASHITA YUKIHIRO

KURODA DAISUKE

APPLICANT(s): DENSO CORP

APPL. NO.: 2006-156745 [JP 2006156745]

FILED: June 06, 2006 (20060606)

International Patent Class (v8 + Attributes)

IPC + Level Value Status Version Action Source Office:

F02D-0045/00 A I F B 20060101 20071122 H JP

B60R-0016/03 A I L B 20060101 20071122 H JP

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide a vehicular power system capable of suppressing fluctuation of a power voltage, drop of engine revolution, and a deceleration feeling of a vehicle, and of preventing a generated power-deficient state over a long time.

SOLUTION: This vehicular power system is provided with: a battery 108 supplying power to electric loads 107a and 107b through a power bus 115; a generator 102 supplying power to the battery 108 and the

electric loads 107a and 107b through the power bus 115; and a power control device 105 setting generated power of the generator 102 based on a first range representing a range of charge/discharge power of the battery 108 required for keeping the variation of the power voltage appearing on the power bus 115 within an allowable range, and a second range representing a variation rate range of the charge/discharge power of the battery 108 required for keeping the variation rate of the power voltage within an allowable range.

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7/5/2 (Item 2 from file: 347)  
DIALOG(R)File 347:JAP10  
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09034555 \*\*Image available\*\*  
GENERATOR CONTROL UNIT

PUB. NO.: 2007-074815 [JP 2007074815 A]  
PUBLISHED: March 22, 2007 (20070322)  
INVENTOR(s): SHIMOMYAMA TAKESHI  
TANAKA KATSUNORI  
OBAYASHI KAZUYOSHI  
TANI KEISUKE  
YAMASHITA YUKIHIRO  
KURODA DAISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2005-258693 [JP 2005258693]  
FILED: September 07, 2005 (20050907)

International Patent Class (v8 + Attributes)  
IPC + Level Value Position Status Version Action Source Office:  
H02J-0007/16 A I F B 20060101 20070223 H JP  
H02P-0009/04 A I L B 20060101 20070223 H JP

#### ABSTRACT

PROBLEM TO BE SOLVED: To perform highly efficient power generation while satisfying generation requirements of an electrical load of a vehicle and a charge/discharge state of a battery.

SOLUTION: A function as a voltage control means 15 for controlling output voltage of a generator 13 to a designated voltage and a function as a current control means 16 for controlling an output current of the generator 13 to a designated current are integrated into a generation control unit ECU 14 for controlling a generation amount of the generator 13. The generation control ECU unit 14 switches between a current control mode for controlling the output current of the generator 13 to the designated current using the current control means 16 and the voltage control mode for controlling the output voltage of the generator 13 to the designated voltage using the voltage control means 15 based on whether or not a current engine operation state is under an idling state. Otherwise, the voltage control mode, the current control mode and an autonomous control mode by an autonomous control unit in the generator 13 may be switched based on the diagnostic result of an abnormality diagnosis system.

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7/5/3 (Item 3 from file: 347)  
DIALOG(R)File 347:JAPIO  
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08945805 \*\*Image available\*\*  
MANAGEMENT METHOD OF ELECTRIC SYSTEM FOR VEHICLE

PUB. NO.: 2006-339165 [JP 2006339165 A]  
PUBLISHED: December 14, 2006 (20061214)  
INVENTOR(s): OBAYASHI KAZUYOSHI  
TANI KEISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2006-168703 [JP 2006168703]  
Division of 2003-047888 [JP 200347888]  
FILED: June 19, 2006 (20060619)

International Patent Class (v8 + Attributes)

IPC + Level Value Position Status Version Action Source Office:

H01M-0010/48	A I F B	20060101	20061117	H	JP
H02J-0007/34	A I L B	20060101	20061117	H	JP
B60L-0011/14	A I L B	20060101	20061117	H	JP
H02J-0007/00	A I L B	20060101	20061117	H	JP
B60W-0020/00	A N L B	20060101	20061117	H	JP
B60W-0010/26	A N L B	20060101	20061117	H	JP

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide a management method of an electric system by which a calculation of an energy cost of a vehicle battery is simplified, the battery energy cost is utilized effectively and then an improvement of a fuel consumption is realized.

SOLUTION: Only when a discharging power volume increases up to a single unit, an oldest information regarding the energy unit will be erased (S11004). Then, only when a charging power volume increases up to a single energy unit, a power cost of a single energy unit which is an average cost necessitated for the charging will be calculated (S11008), and the information regarding the latest piled single energy unit will be memorized in a table shown in figure 6. Thus, a battery power cost can be easily calculated, based on the information regarding a power cost of the energy unit memorized presently in the table.

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7/5/4 (Item 4 from file: 347)  
DIALOG(R)File 347:JAPIO  
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08941737 \*\*Image available\*\*  
CONTROL UNIT OF ENGINE WITH ACCESSORY

PUB. NO.: 2006-335097 [JP 2006335097 A]  
PUBLISHED: December 14, 2006 (20061214)  
INVENTOR(s): TANI KEISUKE  
OBAYASHI KAZUYOSHI  
KURODA DAISUKE

APPLICANT(s): DENSO CORP  
APPL. NO.: 2005-158765 [JP 2005158765]  
FILED: May 31, 2005 (20050531)

International Patent Class (v8 + Attributes)  
IPC + Level Value Position Status Version Action Source Office:  
B60W-0019/08 A I F B 20060101 20061117 H JP  
B60W-0019/04 A I L B 20060101 20061117 H JP  
B60W-0019/30 A I L B 20060101 20061117 H JP  
F02D-0029/06 A I L B 20060101 20061117 H JP  
H02P-0009/04 A I L B 20060101 20061117 H JP

#### ABSTRACT

PROBLEM TO BE SOLVED: To restrain variations in torque (variations in rotation of an engine) of a vehicle caused by variations of torque for driving accessories of the vehicle.

SOLUTION: A control unit of an engine with accessory calculates generated electric current for requesting to a generator in response to operating conditions of electric load of the vehicle and a charged state of a battery, estimates driving torque for the generator required for driving the generator in response to required generating electric current, controls the engine by calculating the torque summing up driving torque for the generator and torque (requested driving torque of a vehicle) required for travelling of the vehicle as required engine torque, estimates engine torque realized at the next calculation timing in consideration of response delay of an engine, calculates a difference between the estimated engine torque and requested driving torque of a vehicle as a permitted torque, calculates generated electric current as directive electric current in response to the permitted torque, and controls the controlled electric current for a generator so as to generate electric current equivalent to the directive electric current.

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7/5/5 (Item 5 from file: 347)  
DIALOG(R)File 347:JAP10  
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08904970 \*\*Image available\*\*  
ELECTRIC POWER EQUILIBRIUM CONTROL TYPE POWER SOURCE SYSTEM FOR VEHICLE

PUB. NO.: 2006-298330 [JP 2006298330 A]  
PUBLISHED: November 02, 2006 (20061102)  
INVENTOR(s): OBAYASHI KAZUYOSHI  
TAMURA HIROSHI  
TANI KEISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2005-127113 [JP 2005127113]  
FILED: April 25, 2005 (20050425)

International Patent Class (v8 + Attributes)  
IPC + Level Value Position Status Version Action Source Office:  
B60R-0016/03 A I F B 20060101 20061006 H JP  
B60R-0016/02 A I L B 20060101 20061006 H JP  
B60L-0001/00 A I L B 20060101 20061006 H JP

R02J-0007/16 A I L B 20060101 20061006 H JP  
H02P-0009/14 A I L B 20060101 20061006 H JP  
ABSTRACT

PROBLEM TO BE SOLVED: To control power generation in correspondence with demanded electric power fluctuation of an electric load favorably in response and to reduce average electric power cost by increasing availability when supplying electric power at low cost such as regenerated electric power is available.

SOLUTION: Electric power equilibrium control to generate generated output equivalent to system demanded electric power within a favorable and suitable charge and discharge electric power range of a battery is carried out (step S100 to step S104), whether electric power consumption of the generated output is inexpensive or not is judged (step S106), the electric power consumption (demanded electric power) of thermal equipment is increased when it is inexpensive and the generated output is increased in correspondence with this increase. Consequently, it is possible to effectively use the inexpensive generated output generated by regenerative electric power generation while restraining frequent charge and discharge of the battery.

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7/5/6 (Item 6 from file: 347)  
DIALOG(R)File 347:JAPIO  
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08904686 \*\*Image available\*\*  
ELECTRIC POWER EQUILIBRIUM CONTROL TYPE POWER SOURCE SYSTEM FOR VEHICLE

PUB. NO.: 2006-298046 [JP 2006298046 A]  
PUBLISHED: November 02, 2006 (20061102)  
INVENTOR(s): OBAYASHI KAZUYOSHI  
TAMURA HIROSHI  
TANI KEISUKE  
APPLICANT(s): DENSO CORP  
APPL. NO.: 2005-119822 [JP 2005119822]  
FILED: April 18, 2005 (20050418)

International Patent Class (v8 + Attributes)  
IPC + Level Value Position Status Version Action Source Office:  
B60R-0016/03 A I F B 20060101 20061006 H JP  
B60R-0016/033 A I L B 20060101 20061006 H JP  
H02P-0009/04 A I L B 20060101 20061006 H JP

#### ABSTRACT

PROBLEM TO BE SOLVED: To provide an electric power source system for a vehicle small in voltage fluctuation regardless of sudden fluctuation of demanded electric power of an electric load and generated output of a generator and capable of controlling power generation with favorable response.

SOLUTION: Electric power equilibrium control to generate the generated output equivalent to the system demanded electric power is carried out within a favorable and suitable charge and

discharge electric power region of a battery, a change of the demanded electric power due to the change of the demanded electric power is computed as temporary demanded electric power (S110) by sudden starting stop of a specific electric load, the favorable and suitable charge and discharge electric power range is formed (S130) in expectation of this temporary demanded electric power and the generated output and load distribution electric power are regulated (S140) so as to maintain this favorable and suitable charge and discharge electric power range. Consequently, it is possible to prevent the voltage fluctuation due to sudden operation and stoppage of the electric load.

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7/5/10 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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0017613623 - Drawing available  
WPI ACC NO: 2008-E34067/200830  
XRPX Acc No: N2008-340298

Control system e.g. for motor vehicles, has auxiliary device controller and engine controller for executing engine torque control to vary output torque of engine

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)  
Inventor: OBAYASHI K; SHIMOHAMA T; TANAKA K; TANI K; YAMAMOTO N ; YAMASHITA Y

Patent Family (4 patents, 4 countries)

Patent	Application	Number	Kind	Date	Number	Kind	Date	Update
DE 102007000370	A1	20080110	DE	102007000370	A	20070705	200830	B
JP 2008014221	A	20080124	JP	2006186245	A	20060706	200830	E
US 20080006236	A1	20080110	US	2007806570	A	20070601	200830	E
CN 101100961	A	20080109	CN	200710127446	A	20070705	200833	E

Priority Applications (no., kind, date): JP 2006186245 A 20060706

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
DE 102007000370	A1	DE	25	7	
JP 2008014221	A	JA	14		

Alerting Abstract DE A1

NOVELTY - The control system has an auxiliary device controller and an engine controller for executing an engine torque control to vary the output torque of the engine. A failure detector is provided which detects a failure, related to an operating parameter of the engine, which adversely affect engine torque control being executed with the engine controller. The auxiliary device controller alters a drive control of the auxiliary device in response to the detected failure. The auxiliary device has an alternator, an air-conditioning compressor, a power-steering compressor and a motor generator.

DESCRIPTION - An INDEPENDENT CLAIM is included for a method of controlling an engine for a vehicle.

USE - For engine with auxiliary device. For motor vehicles.

ADVANTAGE - Provides suitable control to run machine with optimal efficiency

DESCRIPTION OF DRAWINGS - The figure shows a flow chart of the invention.  
(Drawing includes non-English language text).

Title Terms/Index Terms/Additional Words: CONTROL; SYSTEM; MOTOR; VEHICLE;  
AUXILIARY; DEVICE; ENGINE; EXECUTE; TORQUE; VARY; OUTPUT

Class Codes

International Classification (+ Attributes)  
IPC + Level Value Position Status Version  
B60K-0025/00 A I L B 20060101  
B60W-0010/24 A I L B 20060101  
B60W-0010/30 A I L B 20060101  
B60W-0050/02 A I F B 20060101  
F02D-0029/00 A I F B 20060101  
F02D-0029/02 A I L B 20060101  
F02D-0029/04 A I L B 20060101  
F02D-0029/06 A I F B 20060101  
F02D-0029/06 A I L B 20060101  
H02P-0009/04 A N L B 20060101  
B60K-0025/00 C I L B 20060101  
B60W-0010/24 C I L B 20060101  
B60W-0010/30 C I L B 20060101  
B60W-0050/02 C I F B 20060101  
F02D-0029/00 C I F B 20060101  
F02D-0029/02 C I L B 20060101  
F02D-0029/04 C I L B 20060101  
F02D-0029/06 C I F B 20060101  
F02D-0029/06 C I L B 20060101  
H02P-0009/04 C N L B 20060101

ECLA: F02D-041/02C, F02D-041/14F, F02D-041/22B

ICO: L60K-025:00

US Classification, Issued: 123198.R

JP Classification

JP Term	Facet	Rank	Type
F02D-029/02	K	B	secondary
F02D-029/02	K		
F02D-029/04	B	B	secondary
F02D-029/04	B		
F02D-029/04	F	B	secondary
F02D-029/04	F		
F02D-029/06	E	A	main
F02D-029/06	E		
H02P-009/04	L	-	additional
H02P-009/04	L		

F-Term View Point Additional

Theme + Figure Code

3G093		
5H590		
5H590	AA30	
3G093	BA02	
3G093	BA10	
3G093	BA11	
3G093	BA12	
5H590	CA07	
3G093	CA08	

3G093	CA12
5H590	CA23
3G093	DA06
3G093	DB24
3G093	DB25
3G093	DB26
3G093	EA09
3G093	EA13
5H590	EB14
5H590	FA01
3G093	FB03

File Segment: EPI;  
 DWEBI Class: X22  
 Manual Codes (EPI/S-X): X22-F

7/5/11 (Item 2 from file: 350)

DIALOG(R)File 350:Derwent WPIX  
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 0017283488 - Drawing available  
 WPI ACC NO: 2008-B03927/200807  
 XRPX Acc No: N2008-082106

Motor vehicle power supply system, has power supply controller with switching arrangement that adjusts power to value determined based on range of power values of battery and range of rate of change of power values

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: KURUDA D; OBAYASHI K; SENDA T; TANI K; YAMASHITA Y

Patent Family (7 patents, 4 countries)

Patent		Application					
Number	Kind	Date	Number	Kind	Date	Update	
DE 102007025492	A1	20071213	DE 102007025492	A	20070601	200807	
JP 2007327337	A	20071220	JP 2006156745	A	20060606	200807	
US 20080157539	A1	20080703	US 2007808089	A	20070606	200846	
KR 2008092208	A	20081015	KR 200755732	A	20070607	200912	
KR 2009017673	A	20090218	KR 200755732	A	20070607	200919	
			KR 2009379	A	20090105		
KR 896776	B1	20090514	KR 200755732	A	20070607	200939	
KR 906229	B1	20090707	KR 200755732	A	20070607	200948	
			KR 2009379	A	20090105		

Priority Applications (no., kind, date): JP 2006156745 A 20060606

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
DE 102007025492	A1	DE	41	20	
JP 2007327337	A	JA	20		
KR 2009017673	A	KO			Division of application KR 200755732
KR 896776	B1	KO			Previously issued patent KR 2008092208
KR 906229	B1	KO			Division of application KR 200755732
					Previously issued patent KR 2009017673

Alerting Abstract DE A1

NOVELTY - The system has a battery (108) for supplying electrical power to electrical loads (107a, 107b) over a power supply bus (115). An electrical generator (102) supplies electrical power over the bus to the battery and the loads. A power supply controller (105) controls value of produced power of the

generator. The controller exhibits a switching arrangement, which is adapted to adjust the produced electrical power to a value that is determined based on a range of values of charging/discharging power of battery and a range of values of rate of change of charging/discharging power.

USE - Used in a motor vehicle for regulating electrical power that is produced on an electrical generator.

ADVANTAGE - The power supply controller exhibits the switching arrangement that is adapted to adjust the produced electrical power to the value that is determined based on the range of values of charging/discharging power of battery and the range of values of rate of change of the charging/discharging power, thus optimally controlling the charging and discharging of the battery in order to efficiently ensure that charging of the battery is realized with reduced fuel consumption and to minimize moment variation of the engine speed.

DESCRIPTION OF DRAWINGS - The drawing shows an entire configuration of a vehicle power supply system. (Drawing includes non-English language text)

- 102 Electrical generator
- 105 Power supply controller
- 107a, 107b Electrical loads
- 108 Battery
- 115 Power supply bus

Title Terms/Index Terms/Additional Words: MOTOR; VEHICLE; POWER; SUPPLY; SYSTEM; CONTROL; SWITCH; ARRANGE; ADJUST; VALUE; DETERMINE; BASED; RANGE; BATTERY; RATE; CHANGE

#### Class Codes

#### International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/18	A	I	L	20060101	
B60R-0016/02	A	I	L	20060101	
B60R-0016/03	A	I	F	B	20060101
B60R-0016/03	A	I	L	B	20060101
F02D-0035/00	A	I	F	B	20060101
F02D-0041/00	A	I	L	B	20060101
F02D-0045/00	A	I	F	B	20060101
F02D-0045/00	A	I	F		20060101
H02J-0007/14	A	I	L	B	20060101
H02J-0007/14	A	I	L		20060101
H02P-0009/00	A	I	L	B	20060101
H02P-0009/04	A	I	L	B	20060101
B60L-0011/18	C	I			20060101
B60R-0016/02	C	I			20060101
B60R-0016/03	C	I	F	B	20060101
B60R-0016/03	C	I	L	B	20060101
F02D-0035/00	C	I	F	B	20060101
F02D-0041/00	C	I	L	B	20060101
F02D-0045/00	C	I	F	B	20060101
F02D-0045/00	C	I			20060101
H02J-0007/14	C	I	L	B	20060101
H02J-0007/14	C	I			20060101
H02P-0009/00	C	I	L	B	20060101
H02P-0009/04	C	I	L	B	20060101

ECLA: F02D-041/02C, H02J-001/14

ICO: L60R-016:03

US Classification, Current Main: 290-04000C; Secondary: 290-04000A,  
290-04000B, 320-134000, 322-025000  
US Classification, Issued: 29040.C, 32225, 320134, 29040.A, 29040.B

JP Classification

PI Term	Facet	Rank	Type
B60R-016/02	670	K	
F02D-045/00	312	S	
F02D-045/00	314	L	
F02D-045/00	314	S	
F02D-045/00	395	A	

F-Term View Point Additional

Theme	+ Figure	Code
3D015		
3G384		
3G384	BA02	
3G384	BA52	
3G384	DA15	
3G384	DA44	
3G384	EB01	
3G384	EB08	
3G384	ED07	
3G384	EE31	
3G384	FA66	Z
3G384	FA81	Z

File Segment: EngPI; EPI;

DWPI Class: X16; X22; Q51

Manual Codes (EPI/S-X): X16-G02C; X22-F01A; X22-F04

7/5/12 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0016690689 - Drawing available

WPI ACC NO: 2007-405772/200739

XRPX Acc No: N2007-304543

Electric generator control system for motor vehicle, has electronic control unit for selective setting of modes for controlling output voltage/current of generator to maintain respective target voltage and current values

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: KURODA D; OBAYASHI K; SHIMOBAYAMA T; TANAKA K; TANI K; YAMASHITA Y

Patent Family (6 patents, 4 countries)

Application					
Number	Kind	Date	Number	Kind	Date
DE 102006041819	A1	20070308	DE 102006041819	A	20060906
JP 2007074815	A	20070322	JP 2005258693	A	20050907
US 20070052243	A1	20070308	US 2006508232	A	20060823
KR 2007028255	A	20070312	KR 200685815	A	20060906
US 7459801	B2	20081202	US 2006508232	A	20060823
KR 847527	B1	20080721	KR 200685815	A	20060906

Priority Applications (no., kind, date): JP 2005258693 A 20050907

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
DE 102006041819	A1	DE	18	8	
JP 2007074815	A	JA	11		
KR 847527	B1	KO			Previously issued patent KR 2007028255

**Alerting Abstract DE A1**

**NOVELTY** - The system has an electronic control unit (ECU) (14) for switching between voltage and current control modes based on specific criteria. The output voltage of an electric generator (13) is controlled by a voltage control section, to maintain a target voltage value, during the voltage current mode. The output current of the generator is controlled to maintain the target current value, during the current control mode.

**USE** - Used for controlling an electric generator (claimed) in a motor vehicle, for charging the battery of the vehicle and for supplying power to an electrical load e.g. lamp, of the vehicle.

**ADVANTAGE** - The ECU switches between the voltage and current control modes based on the specific criteria, hence the operating efficiency of the generator is improved while sufficient power is generated to charge the vehicle battery and to drive the electrical load. The fuel consumption of the vehicle is hence reduced.

**DESCRIPTION OF DRAWINGS** - The drawing shows a block diagram of a configuration of an electric generator control system.

12 Electric load  
 13 Electric generator  
 14 Electronic control unit  
 15 Voltage control section  
 16 Current control section

**Title Terms/Index Terms/Additional Words:** ELECTRIC; GENERATOR; CONTROL; SYSTEM; MOTOR; VEHICLE; ELECTRONIC; UNIT; SELECT; SET; MODE; OUTPUT; VOLTAGE; CURRENT; MAINTAIN; RESPECTIVE; TARGET; VALUE

**Class Codes**

**International Classification (Main):** H02J-007/14  
 (Additional/Secondary): H02P-009/00, H02P-009/48

**International Classification (+ Attributes)**

**IPC + Level Value Position Status Version**

H02D-0029/06	A	I	L	B	20060101
F02N-0011/06	A	I	F	B	20060101
H02J-0007/14	A	I	F		20060101
H02S-0007/14	A	I	F	B	20060101
H02J-0007/16	A	I	F	B	20060101
H02P-0009/04	A	I	F	B	20060101
H02P-0009/04	A	I	L	B	20060101
F02D-0029/06	C	I		B	20060101
F02N-0011/04	C	I	F	B	20060101
H02J-0007/14	C	I		B	20060101
H02J-0007/16	C	I		B	20060101
H02J-0007/16	C	I	F	B	20060101
H02P-0009/04	C	I	B		20060101
H02P-0009/04	C	I	L	B	20060101

**ECLA:** H02P-009/48

**US Classification, Current Main:** 290-04000B  
**US Classification, Issued:** 29040.B, 29040.B

**JP Classification**

FI Term	Facet	Rank	Type
H02J-007/16	X		
H02P-009/04	M		

F-Term	View	Point	Additional
Theme	+ Figure		Code
5G060			
5H590			
5H590	AA02		
5G060	AA04		
5H590	AB01		
5H590	AB02		
5G060	CA03		
5G060	CA04		
5H590	CA23		
5H590	CE05		
5G060	DB07		
5H590	EA07		
5H590	EB12		
5H590	EB13		
5H590	HA02		
5H590	HA04		

File Segment: EPI;  
 DWEI Class: T01; X13; X16; X22  
 Manual Codes (EPI/S-X): T01-J07D1; X13-G02T3; X13-G02X; X13-U01; X16-G02C;  
 X22-F01A; X22-F02

7/5/13 (Item 4 from file: 350)

DIALOG(R)File 350:Derwent WPIX  
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 0016475109 - Drawing available  
 WPI ACC NO: 2007-191338/200719  
 XRPFX Acc No: N2007-140247

Engine speed controller for vehicle energy control system, requests  
 increase or decrease of engine speed, based on evaluated tendency of power  
 generation

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: KURODA D; OBAYASHI K; TANI K; YAMASHITA Y

Patent Family (4 patents, 3 countries)

Application					
Patent	Number	Kind	Date	Number	Kind
US	20070021267	A1	20070125	US 2006488758	A
DE	102006000346	A1	20070215	DE 102006000346	A
JP	2007023929	A	20070201	JP 2005208605	A
US	7473206	B2	20090106	US 2006488758	A

Priority Applications (no., kind, date): JP 2005208605 A 20050719; US  
 2006488758 A 20060719

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20070021267	A1	EN	24	15	
JP 2007023929	A	JA	21		

Alerting Abstract US A1

NOVELTY - An engine speed changing unit evaluates tendency of power generation, based on requested power generation and present power generation. The engine speed changing unit requests increase in the engine speed when it determines the power generation is inclined towards shortage, and requests decrease in the engine speed when it determines the power generation is inclined towards excess.

DESCRIPTION - An INDEPENDENT CLAIM is included for engine speed control method.

USE - For vehicle energy control system.

ADVANTAGE - Since engine speed is changed according to evaluated tendency of power generation, the severe discharge by the battery is eliminated and increase in fuel consumption is suppressed.

DESCRIPTION OF DRAWINGS - The figure shows the block diagram of the energy control system.

Title Terms/Index Terms/Additional Words: ENGINE; SPEED; CONTROL; VEHICLE; ENERGY; SYSTEM; REQUEST; INCREASE; DECREASE; BASED; EVALUATE; TENDENCY; POWER; GENERATE

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60R-0016/03	A	I	F	B	20060101
B60W-0010/04	A	I	F	B	20060101
F02D-0045/00	A	I	F	B	20060101
H02J-0007/14	A	I	L	B	20060101
H02P-0009/04	A	I	L	B	20060101
B60R-0016/03	C	I	F	B	20060101
B60W-0010/04	C	I	F	B	20060101
B60W-0010/04	C	I		B	20060101
F02D-0045/00	C	I	F	B	20060101
H02J-0007/14	C	I	L	B	20060101
H02P-0009/04	C	I	L	B	20060101

US Classification, Current Main: 477-107000; Secondary: 180-065400,

477-110000

US Classification, Issued: 477107, 477107, 477110, 18065.4

#### JP Classification

FI Term	Facet	Rank	Type
F02D-045/00	312	C	
F02D-045/00	322	B	
F02D-045/00	322	C	

#### F-Term View Point Additional

Theme	+ Figure	Code
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3G084		
3G384		
3G384	AA01	
3G384	BA03	
3G384	BA51	
3G384	BA52	
3G384	BA54	
3G384	CA05	
3G384	CA16	
3G384	DA05	
3G384	DA10	
3G384	EA02	

3G384	EB01
3G384	EB02
3G384	EB17
3G384	EB18
3G384	EC05
3G384	ED07
3G384	FA56
3G384	FA73
3G384	FA81

File Segment: EPI;  
 DWPi Class: X22  
 Manual Codes (EPI/S-X): X22-A03B; X22-J02E

7/5/14 (Item 5 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
 (c) 2009 Thomson Reuters. All rts. reserv.  
 0016441268 - Drawing available  
 WPI ACC NO: 2007-157497/200716  
 XRXPX Acc No: N2007-114215

Controller for engine of vehicle, has alternator control unit that controls alternator with delay in consideration of delay of responsiveness of engine output torque

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: KURODA D; OBAYASHI K; TANI K

Patent Family (4 patents, 3 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 20060271257	A1	20061130	US 2006441226	A	20060526	200716 B
DE 102006000260	A1	20061207	DE 102006000260	A	20060530	200716 E
JP 2006335097	A	20061214	JP 2005158765	A	20050531	200716 E
US 7356402	B2	20080408	US 2006441226	A	20060526	200826 E

Priority Applications (no., kind, date): JP 2005158765 A 20050531; US 2006441226 A 20060526

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20060271257	A1	EN	8	4	
JP 2006335097	A	JA	9		

Alerting Abstract US A1

NOVELTY - A calculating unit computes an alternator-drive torque that is necessary to achieve a function of an alternator (17). An engine control unit adjusts the output torque of an engine (11) according to the calculated alternator-drive torque. An alternator control unit controls the alternator with a delay in consideration of a delay of responsiveness of the engine output torque.

USE - For controlling the engine of motor vehicle.

ADVANTAGE - Restricts fluctuation in engine speed due to increment or decrement in driving torque of alternator.

DESCRIPTION OF DRAWINGS - The figure shows the schematic block diagram of vehicle control system.

- 11 Engine
- 12 Control apparatus
- 13 Engine controller

14 Vehicle controller  
17 Alternator

Title Terms/Index Terms/Additional Words: CONTROL; ENGINE; VEHICLE;  
ALTERNATOR; UNIT; DELAY; OUTPUT; TORQUE

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60W-0010/00	A	I	F	B	20060101
B60W-0010/04	A	I	L	B	20060101
B60W-0010/30	A	I	L	B	20060101
F02D-0029/06	A	I	L	B	20060101
F02D-0041/04	A	I	L	B	20060101
F02D-0045/00	A	I	F	B	20060101
G06F-0007/00	A	I	F	B	20060101
H02P-0009/04	A	I	L	B	20060101
B60W-0010/00	C	I	F	B	20060101
B60W-0010/04	C	I	L	B	20060101
B60W-0010/30	C	I	L	B	20060101
F02D-0029/06	C	I	L	B	20060101
F02D-0041/04	C	I	L	B	20060101
F02D-0045/00	C	I	F	B	20060101
G06F-0007/00	C	I	F	B	20060101
H02P-0009/04	C	I	L	B	20060101

ECLA: B60K-006/485, B60W-010/06, B60W-010/08, B60W-020/00

US Classification, Current Main: 701-036000

US Classification, Issued: 70136, 701102, 70136

JP Classification

FI Term	Facet	Rank	Type
B60K-041/00			
B60K-041/00	301	A	
B60K-041/00	301	L	
F02D-029/06			G
H02P-009/04			M

F-Term View Point Additional

Theme + Figure Code

3D041		
3G093		
5H590		
3D041	AA01	
3G093	AA11	
3G093	AA16	
3D041	AA66	
3D041	AB01	
3D041	AC01	
3D041	AC30	
3D041	AD01	
3D041	AD50	
3D041	AD52	
3D041	AE00	
3D041	AE03	
3D041	AE04	
3D041	AE05	
3D041	AE07	

3D041	AE09
3D041	AF01
3G093	BA02
3G093	BA14
3G093	CA08
5H590	CA09
5H590	CA23
5H590	CC01
5H590	CE05
3G093	DA01
3G093	DB20
3G093	DB24
3G093	DB26
3G093	EA02
3G093	EA05
3G093	EA06
3G093	EA09
3G093	EA13
3G093	EB09
5H590	FA05
3G093	FA07
3G093	FB01
3G093	FB02
5H590	GA04
5H590	GB05
5H590	JA03

File Segment: EPI;  
 DWPI Class: S02; T01; X22  
 Manual Codes (EPI/S-X): S02-F02; T01-J07D1; X22-A03

7/5/15 (Item 6 from file: 350)  
 DIALOG(R)File 350:Derwent WPIX  
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 0015881539 - Drawing available  
 WPI ACC NO: 2006-413216/200642  
 XRXPX Acc No: N2006-342191

Exhaust gas-driven generator system for vehicle engine has determination unit that judges amount of power to be produced by generator and the amount of electric power to be produced by turbocharger

Patent Assignee: DENSO CORP. (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: FUJITSUNA M; OBAYASHI K; TAMURA H; TANI K

Patent Family (4 patents, 3 countries)

Application					
Patent	Number	Kind	Date	Number	Kind
Number	US 20060113799	A1	20060601	US 2005232036	A
JP 2006152993	A	20060615	JP 2004349044	A	20041201
DE 102005056901	A1	20060706	DE 102005056901	A	20051129
US 7432609	B2	20081007	US 2005232036	A	20050922
					200642
					E
					E
					E

Priority Applications (no., kind, date): JP 2004349044 A 20041201; US 2005232036 A 20050922

Patent Details						
Number	Kind	Lan	Pg	Dwg	Filing	Notes
US 20060113799	A1	EN	11	5		

## Alerting Abstract US A1

NOVELTY - A generator (4) produces power using drive forces of an engine while a turbocharger (1) produces power using exhaust gas energy of the engine. A determination unit judges the amount of power to be produced by generator corresponding to the engine operating point, and the amount of electric power to be produced by the turbocharger, such that turbo charger uses smaller amount of fuel than the generator.

DESCRIPTION - An INDEPENDENT CLAIM is included for a control method of an electrical system.

## USE - For vehicle engine.

ADVANTAGE - Increases engine output and the amount of energy useful for exhaust gas-driven generator increases, thereby reducing power costs.

DESCRIPTION OF DRAWINGS - The figure shows the block diagram of a vehicle electric system.

1 Turbocharger

4 Generator

8 Power control

104 Engine control

112 General control

Title Terms/Index Terms/Additional Words: EXHAUST; GAS; DRIVE; GENERATOR; SYSTEM; VEHICLE; ENGINE; DETERMINE; UNIT; JUDGEMENT; AMOUNT; POWER; PRODUCE; ELECTRIC; TURBOCHARGE

## Class Codes

## International Classification (+ Attributes)

## IPC + Level Value Position Status Version

	F01D-0015/10	A	N	L	B	20060101
F01N-0005/04	A	I	L	B	20060101	
F02B-0033/00	A	I	L	B	20060101	
F02B-0037/00	A	I	F	B	20060101	
F02B-0037/10	A	I	F	B	20060101	
F02C-0006/00	A	N	L	B	20060101	
F02D-0029/06	A	I	F	B	20060101	
F02D-0029/06	A	I	L	B	20060101	
F02D-0045/00	A	I	L	B	20060101	
H02H-0007/06	A	N	L	B	20060101	
H02J-0001/10	A	N	L	B	20060101	
H02J-0003/38	A	N	L	B	20060101	
H02S-0007/34	A	N	L	B	20060101	
H02K-0007/18	A	N	L	B	20060101	
H02P-0011/00	A	N	L	B	20060101	
H02P-0009/00	A	N	L	B	20060101	
H02P-0009/04	A	I	F	B	20060101	
H02P-0009/04	A	I	L	B	20060101	
F01D-0015/00	C	N	L	B	20060101	
F01N-0005/00	C	I	L	B	20060101	
F02B-0033/00	C	I	L	B	20060101	
F02B-0037/04	C	I	F	B	20060101	
F02C-0006/00	C	N	L	B	20060101	
F02D-0029/06	C	I	F	B	20060101	
F02D-0029/06	C	I	L	B	20060101	
H02H-0007/06	C	N	L	B	20060101	
H02J-0001/10	C	N	L	B	20060101	
H02J-0003/38	C	N	L	B	20060101	

H02J-0007/34 C N L B 20060101  
H02K-0007/18 C N L B 20060101  
H02P-0011/00 C N L B 20060101  
H02P-0009/00 C N L B 20060101  
H02P-0009/04 C I L B 20060101

ECLA: F01N-005/04, F02B-037/00D, F02D-029/06, F02D-041/02C

US Classification, Current Main: 290-04000B, 290-04000C; Secondary:

290-052000, 290-408000, 307-018000, 322-036000

US Classification, Issued: 29040.B, 29040.C, 290408, 29052, 32236, 30718

JP Classification

FI Term	Facet	Rank	Type
F01N-005/04	A		
F02B-033/00	F		
F02B-037/10	Z		

F-Term View Point Additional

Theme	+ Figure	Code
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3G004		
3G005		
3G005	EA20	
3G005	GD11	
3G005	GD16	
3G005	GE09	
3G005	HA05	
3G005	HA15	
3G005	JA34	
3G005	JA42	
3G005	JB25	
3G005	JB26	

File Segment: EngPI; EPI;

DWPI Class: X13; X22; Q52

Manual Codes (EPI/S-X): X13-G02T3; X13-G02T4; X13-G02X; X13-U01; X22-F

## NPL Files

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
(c) 2002 Gale/Cengage

File 474:New York Times Abs 1969-2009/Oct 23  
(c) 2009 The New York Times

File 475:Wall Street Journal Abs 1973-2009/Oct 23  
(c) 2009 The New York Times

File 35:Dissertation Abs Online 1861-2009/Sep  
(c) 2009 ProQuest InfoLearning

File 65:Inside Conferences 1993-2009/Oct 23  
(c) 2009 BLDS C all rts. reserv.

File 99:Wilson Appl. Sci & Tech Abs 1983-2009/Sep  
(c) 2009 The HW Wilson Co.

File 256:TecTrends 1982-2009/Oct W2  
(c) 2009 Info.Sources Inc. All rights res.

File 2:INSPEC 1898-2009/Oct W3  
(c) 2009 The IET

File 81:MIRA - Motor Industry Research 2001-2009/Aug  
     (c) 2009 MIRA Ltd.  
 File 63:Transport Res(TRIS) 1970-2009/Sep  
     (c) fmt only 2009 Dialog  
 File 610:Business Wire 1999-2009/Oct 23  
     (c) 2009 Business Wire.  
 File 613:PR Newswire 1999-2009/Oct 23  
     (c) 2009 PR Newswire Association Inc  
 File 634:San Jose Mercury Jun 1985-2009/Oct 18  
     (c) 2009 San Jose Mercury News  
 File 810:Business Wire 1986-1999/Feb 28  
     (c) 1999 Business Wire  
 File 813:PR Newswire 1987-1999/Apr 30  
     (c) 1999 PR Newswire Association Inc  
 File 20:Dialog Global Reporter 1997-2009/Oct 23  
     (c) 2009 Dialog  
 File 15:ABI/Inform(R) 1971-2009/Oct 22  
     (c) 2009 ProQuest Info&Learning  
 File 624:McGraw-Hill Publications 1985-2009/Oct 23  
     (c) 2009 McGraw-Hill Co. Inc  
 File 9:Business & Industry(R) Jul/1994-2009/Oct 22  
     (c) 2009 Gale/Cengage  
 File 16:Gale Group PROMT(R) 1990-2009/Sep 29  
     (c) 2009 Gale/Cengage  
 File 148:Gale Group Trade & Industry DB 1976-2009/Oct 06  
     (c) 2009 Gale/Cengage  
 File 160:Gale Group PROMT(R) 1972-1989  
     (c) 1999 The Gale Group  
 File 275:Gale Group Computer DB(TM) 1983-2009/Sep 23  
     (c) 2009 Gale/Cengage  
 File 621:Gale Group New Prod.Annou.(R) 1985-2009/Sep 15  
     (c) 2009 Gale/Cengage  
 File 636:Gale Group Newsletter DB(TM) 1987-2009/Sep 29  
     (c) 2009 Gale/Cengage  
 File 748:Asia/Pac Bus. Jrnls 1994-2005/Dec 13  
     (c) 2005 Dialog  
 File 728:Asia/Pac News 1994-2005/Dec W2  
     (c) 2005 Dialog

Set	Items	Description
S1	65	AU=( OBAYASHI K? OR OBAYASHI, K? OR OBAYASHI (2N) (K OR KAZ- UYOSHI) ) OR BY= OBAYASHI (2N) (K OR KAZUYOSHI)
S2	578	AU=( TANI K? OR TANI, K? OR TANI (2N) (K OR KEISUKE) ) OR BY= TANI (2N) (K OR KEISUKE)
S3	3	S1 AND S2
S4	640	S1 OR S2
S5	1	S4 AND BATTER?
S6	4	S3 OR S5

6/5/1        (Item 1 from file: 65)  
 DIALOG(R)File 65:Inside Conferences  
 (c) 2009 BLDSC all rts. reserv. All rts. reserv.  
 0006882115    INSIDE CONFERENCE ITEM ID: CN070974779  
 2-S7-6 Concept of Vehicle Electric Power Flow Management System  
     Obayashi, K.; Tani, K.; Sakamoto, A.; Fujitsuna, M.  
     CONFERENCE: Japan Industry Applications Society; JIASC 2008-Conference;    20

PROCEEDINGS-JAPAN INDUSTRY APPLICATIONS SOCIETY CONFERENCE, 20TH VOLS 1-3  
2008, 2008; CONF 20; VOL 2 P: 137-142  
Japan Industry Applications Society, 2008  
LANGUAGE: Japanese DOCUMENT TYPE: Conference Papers  
CONFERENCE SPONSOR: Japan Industry Applications Society Institute of  
Electrical and Electronics Engineers  
CONFERENCE LOCATION: Kochi-Shi, Japan 2008; Aug (200808)  
BRITISH LIBRARY ITEM LOCATION: 6742.204700  
NOTE: Text mainly Japanese, some papers in English, English summaries  
DESCRIPTORS: JIAS; Industry applications

6/5/2 (Item 2 from file: 65)  
DIALOG(R)File 65:Inside Conferences  
(c) 2009 BLDSC all rts. reserv. All rts. reserv.  
04991386 INSIDE CONFERENCE ITEM ID: CN052000826  
Concept of Vehicle Electric Power Flow Management System (VEF)  
Obayashi, K.; Tani, K.  
CONFERENCE: Society of Automotive Engineers; SAE 2004 world congress-  
World congress  
PAPERS-SOCIETY OF AUTOMOTIVE ENGINEERS NEW YORK, 2004 P: 0361  
SAE, 2004  
ISSN: 0148-7191  
LANGUAGE: English DOCUMENT TYPE: Conference Separate papers  
CONFERENCE SPONSOR: Society of Automotive Engineers  
CONFERENCE LOCATION: Detroit, MI 2004 Mar (2004M)  
BRITISH LIBRARY ITEM LOCATION: 6392.350000  
NOTE: Nos 2004-01-0001 to 2004-01-1791 with gaps  
DESCRIPTORS: SAE; automotive engineers

6/5/3 (Item 3 from file: 65)  
DIALOG(R)File 65:Inside Conferences  
(c) 2009 BLDSC all rts. reserv. All rts. reserv.  
04934287 INSIDE CONFERENCE ITEM ID: CN051429836  
Concept of Vehicle Electric Power Flow Management System (VEF)  
Obayashi, K.; Tani, K.  
CONFERENCE: Software/hardware systems, systems engineering, advanced  
electronics packaging, and electromagnetic compatibility (EMC);  
Software/hardware systems, systems engineering, advanced electronics  
packaging, and electromagnetic compatibility (EMC)-Sessions  
SAE SP, 2004; (NO) 1857 P: 89-94  
SAE International, 2004  
ISBN: 0768013933  
LANGUAGE: English DOCUMENT TYPE: Conference Papers  
CONFERENCE SPONSOR: Society of Automotive Engineers  
CONFERENCE LOCATION: Detroit, MI 2004 Mar (2004M)  
BRITISH LIBRARY ITEM LOCATION: 8062.927300  
NOTE: Held as part of the SAE 2004 world congress  
DESCRIPTORS: SAE; software systems; automotive engineers; hardware  
systems; systems engineering; advanced electronics packaging;  
electromagnetic compatibility

6/5/4 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2009 The IET. All rts. reserv.

00458358

Title: On the energy dissipation of conduction electrons undergoing elastic scattering by impurities

Authors(s): Yamamoto, T.; Tani, K.; Okada, K.

Journal: Progress of Theoretical Physics, vol.15, no.2, pp.184-185

Country of Publication: Japan

Publication Date: Feb. 1956

Language: English

Document Type: Journal Paper (JP)

Abstract: A mechanism is suggested to account for the dissipation of energy which conduction electrons lose by elastic scattering from impurities (at low temperatures) and which under the conditions of steady current flow, balances the energy supplied by the battery.

Subfile(s): A (Physics)

Descriptors: electrical conductivity; electron scattering

Identifiers: conduction, electrical; electrons -- scattering

Classification Codes: A7200 (Electronic transport in condensed matter)

Copyright: Copyright 2004, IEE

### III. Text Search Results from Dialog

#### A. Patent Files, Abstract

File 371:French Patents 1961-2002/BOPI 200209  
(c) 2002 INPI. All rts. reserv.

File 344:Chinese Patents Abs Jan 1985-2006/Jan  
(c) 2006 European Patent Office

File 347:JAPIO Dec 1976-2009/Jun(Updated 090923)  
(c) 2009 JPO & JAPIO

File 350:Derwent WPIX 1963-2009/UD=200967  
(c) 2009 Thomson Reuters

Set	Items	Description
S1	159738	(HYBRID OR ELECTRIC? OR BATTERY()POWER)(5N)(VEHICL? OR CAR OR CARS OR AUTO OR AUTOS OR AUTOMOBILE? OR TRUCK? OR SUV? OR -SEDAN? OR VAN? OR PICKUP? OR COUPE? OR MINIVAN? OR LORRY OR L-ORRIES)
S2	1984976	BATTERY OR BATTERIES OR CELL OR CELLS OR POWER()(SOURCE?? - OR SUPPLY OR SUPPLIES) OR (ENERGY OR ELECTRICAL)(2N)STORAGE
S3	3573	(CHARG? OR DISCHARG?)(5N)(HISTOR? OR RECORD OR RECORDS)
S4	215069	(UNIT OR UNITS)(5N)(CHARGE OR CHARGES OR ENERGY OR POWER)
S5	314276	(COST? OR PRICE? OR EXPENSE?)(10N)(GENERAT? OR PRODUC? OR -CREAT? OR MAKE? OR MAKING OR YIELD?)
S6	1	S1 AND S2 AND S3 AND S4 AND S5
S7	63	S2 AND S3 AND S4
S8	31	S7 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)
S9	4	S7 AND EC=(B60K-006/46 OR B60L-011/18L OR B60L-011/18M OR -B60L-015/20E OR B60T-001/10 OR 60T-013/58C1 OR B60W-010/06 OR B60W-010/18 OR B60W-010/26 OR B60W-020/00)
S10	7	S7 AND MC=(U24-H OR X16-G02 OR X21-A01D3 OR X21-B01A1A OR -X21-B01B)
S11	32	S7 AND DC=(Q13 OR Q14 OR Q17 OR U24 OR X16 OR X21)
S12	28	S8 AND S11
S13	127	S1 AND S2 AND S4 AND S5
S14	93	S13 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)
S15	16	S13 AND EC=(B60K-006/46 OR B60L-011/18L OR B60L-011/18M OR -B60L-015/20E OR B60T-001/10 OR 60T-013/58C1 OR B60W-010/06 OR B60W-010/18 OR B60W-010/26 OR B60W-020/00)
S16	18	S13 AND MC=(U24-H OR X16-G02 OR X21-A01D3 OR X21-B01A1A OR -X21-B01B)
S17	92	S13 AND DC=(Q13 OR Q14 OR Q17 OR U24 OR X16 OR X21)
S18	7	S14 AND S15 AND S16
S19	14	S14 AND S15 AND S17
S20	17	S14 AND S16
S21	34	S6 OR S9 OR S10 OR S18:S20
S22	18	S21 AND AY=1950:2004
S23	14	S21 NOT AY=2005:2009
S24	18	S22 OR S23

24/5/1 (Item 1 from file: 350)  
DIALOG(R)File 350:Derwent WPIX

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0015891937 - Drawing available

WPI ACC NO: 2006-423615/200643

XRPX Acc No: N2006-349967

Motor vehicle e.g. hybrid vehicle has control module that controls engine and generator to stop engine operation in a non-request state where both power drive and heating drive request are set off by power drive request setting module

Patent Assignee: TOYOTA JIDOSHA KK (TOYT); SUZUKI M (SUZU-I); TOYOTA MOTOR CORP (TOYT)

Inventor: SUZUKI M

Patent Family (7 patents, 111 countries)

Patent	Number	Kind	Date	Number	Kind	Date	Update
WO 2006057433	A1	20060601	WO 2005JP22040	A	20051124	200643	B
JP 2006152827	A	20060615	JP 2004340750	A	20041125	200643	E
EP 1815119	A1	20070808	EP 2005811379	A	20051124	200753	E
			WO 2005JP22040	A	20051124		
US 20070265762	A1	20071115	WO 2005JP22040	A	20051124	200777	E
			US 2007667271	A	20070508		
US 7317985	B2	20080108	WO 2005JP22040	A	20051124	200805	E
			US 2007667271	A	20070508		
CN 101065565	A	20071031	CN 200580040472	A	20051124	200820	E
			WO 2005JP22040	A	20051124		
JP 4066995	B2	20080326	JP 2004340750	A	20041125	200824	E

Priority Applications (no., kind, date): JP 2004340750 A 20041125

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
WO 2006057433	A1	EN	53	7	

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BW BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE EG ES FI GB GD GE GH GM HR HU ID IL IN IS KE KG KM KN KP KR CZ LC LK LR LS LT LU LV LY MA MD MG MK MN MW MX MZ NA NG NI NO NZ OM PG PH PL PT RO RU SC SD SE SG SK SL SM SY TJ TM TN TR TT TZ UA UG US UZ VC VN YU ZA ZM ZW

Regional Designated States,Original: AT BE BG BW CH CY CZ DE DK EA EE ES FI FR GB GH GM GR HU IE IS IT KE LS LT LU LV MC MW MZ NA NL OA PL PT RO SD SE SI SK SL SZ TR TZ UG ZM ZW

JP 2006152827 A1 JA 15

EP 1815119 A1 EN PCT Application WO 2005JP22040  
Based on OPI patent WO 2006057433

Regional Designated States,Original: DE FR

US 20070265762 A1 EN PCT Application WO 2005JP22040

US 7317985 B2 EN PCT Application WO 2005JP22040  
Based on OPI patent WO 2006057433

CN 101065565 A ZH PCT Application WO 2005JP22040  
Based on OPI patent WO 2006057433

JP 4066995 B2 JA 15 Previously issued patent JP 2006152827

#### Alerting Abstract WO A1

NOVELTY - A control module controls the engine and the generator to stop operation of the engine (22) in a non-request state where both the power drive request and the heating drive request are set off by the power drive request setting module and the heating system. The control module controls the engine and the generator to start load operation of the engine. The heating system heats the passenger compartment.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a control method for a motor vehicle.

USE - Motor vehicle e.g. hybrid vehicle.

ADVANTAGE - Load operation of the engine desirably improves the fuel consumption of the vehicle compared with independent operation of the engine.

DESCRIPTION OF DRAWINGS - The figure shows a schematic illustration of the hybrid vehicle.

20 Hybrid vehicle

22 Engine

26 Crankshaft

28 Damper

30 Distribution integration mechanism

Title Terms/Index Terms/Additional Words: MOTOR; VEHICLE; HYBRID; CONTROL; MODULE; ENGINE; GENERATOR; STOP; OPERATE; NON; REQUEST; STATE; POWER; DRIVE; HEAT; SET

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60H-0001/00	A	I	L	B	20060101
B60H-0001/00	A	I	L		20060101
B60H-0001/32	A	I	L	B	20060101
B60K-0006/04	A	I	L	B	20060101
B60K-0006/04	A	I	L		20060101
B60K-0006/445	A	I	L	B	20071001
B60K-0006/448	A	I	L	B	20071001
B60K-0006/52	A	I	L	B	20071001
B60K-0006/547	A	I	L	B	20071001
B60L-0011/14	A	I	L	B	20060101
B60W-0010/06	A	I	L	B	20060101
B60W-0010/08	A	I	L	B	20060101
B60W-0010/30	A	I	L	B	20060101
B60W-0020/00	A	I	L	B	20060101
F02D-0029/02	A	I	L	B	20060101
F02D-0029/02	A	I	L		20060101
F02D-0029/02	A	I	F	B	20060101
F02D-0029/06	A	I	L	B	20060101
F02D-0041/00	A	N	L	B	20060101
F02D-0041/06	A	I	F	B	20060101
F02D-0041/06	A	I	F		20060101
G06F-0019/00	A	I	F	B	20060101
B60H-0001/00	C	I	L	B	20060101
B60H-0001/00	C	I			20060101
B60H-0001/32	C	I	L	B	20060101
B60H-0001/32	C	I			20060101
B60K-0006/08	C	I	L	B	20060101
B60K-0006/08	C	I			20060101
B60K-0006/00	C	I			20071001
B60L-0011/14	C	I	L	B	20060101
B60L-0011/14	C	I			20060101
B60W-0010/06	C	I	L	B	20060101
B60W-0010/06	C	I			20060101
B60W-0010/08	C	I	L	B	20060101
B60W-0010/08	C	I			20060101
B60W-0010/30	C	I	L	B	20060101

B60W-0010/30 C I B 20060101  
 B60W-0020/00 C I L B 20060101  
 B60W-0020/06 C I B 20060101  
 F02D-0029/02 C I L B 20060101  
 F02D-0029/02 C I B 20060101  
 F02D-0029/02 C I B 20060101  
 F02D-0029/06 C I L B 20060101  
 F02D-0029/06 C I B 20060101  
 F02D-0041/00 C N B 20060101  
 F02D-0041/06 C I L B 20060101  
 F02D-0041/06 C I F B 20060101  
 F02D-0041/06 C I B 20060101  
 G06F-0019/00 C I B 20060101

ECLA: B60H-001/00H4, B60H-001/00Y5F, B60K-006/445, B60W-010/06,  
 B60W-010/08, B60W-020/00, F02D-029/02, F02D-041/06

US Classification, Current Main: 701-102000

US Classification, Issued: 701102.0, 701113, 123339.18, 123142.5

JP Classification

FI Term	Facet	Rank	Type
B60H-001/32	625 Z	B	secondary
B60H-001/32	625 Z		
B60K-006/04	310		
B60K-006/04	320		
B60K-006/04	380		
B60K-006/04	400		
B60K-006/04	553		
B60K-006/04	555		
B60K-006/04	710		
B60K-006/04	733		
B60K-006/20	310	B	secondary
B60K-006/20	310		
B60K-006/20	320	B	secondary
B60K-006/20	320		
B60K-006/20	380	B	secondary
B60K-006/20	380		
B60K-006/20	400	B	secondary
B60K-006/20	400		
B60K-006/445		B	secondary
B60K-006/445			
B60K-006/448		B	secondary
B60K-006/448			
B60K-006/52		B	secondary
B60K-006/52			
B60K-006/547		B	secondary
B60K-006/547			
B60L-011/14		B	secondary
B60L-011/14			
F02D-029/02	321 A	A	main
F02D-029/02	321 A		
F02D-029/02	D	B	secondary
F02D-029/02	D		
F02D-029/02	F	B	secondary
F02D-029/02	F		
F02D-029/06	F ZHV	B	secondary
F02D-029/06	F ZHV		

F-Term View Point Additional  
Theme + Figure Code

3D035  
3D202  
3G093  
3L013  
3L211  
5H115  
3G093 AA05  
3G093 AA07  
3G093 BA19  
3G093 CA04  
3G093 CA05  
3G093 CA08  
3G093 DA01  
3G093 DA06  
3G093 DA12  
3G093 DB01  
3G093 DB05  
3G093 DB11  
3G093 DB15  
3G093 DB19  
3G093 DB25  
3G093 EA01  
3G093 EB09  
3G093 FA07  
3G093 FA08  
3G093 FB01  
3G093 FB05  
5H115 PA12  
5H115 PC06  
5H115 PG04  
5H115 PI24  
5H115 PI29  
5H115 PI30  
5H115 PU08  
5H115 PU24  
5H115 PU28  
5H115 PV09  
5H115 QA04  
5H115 QN03  
5H115 RB11  
5H115 RB21  
5H115 RE02  
5H115 RE03  
5H115 SE04  
5H115 SE05  
5H115 TE02  
5H115 TE05

File Segment: EngPI; EPI;  
DWPI Class: X22; Q51; Q12; Q13; Q52  
Manual Codes (EPI/S-X): X22-A03F; X22-F03; X22-J02C; X22-P04

24/5/2 (Item 2 from file: 350)  
DIALOG(R)File 350:Derwent WPIX

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0015826994 - Drawing available

WPI ACC NO: 2006-049546/200606

XRPX Acc No: N2006-042647

Fuel cell system for motor vehicle, has control unit that activates, during transitional increase of requested electrical energy, production of additional water vapor by using heat accumulated in heat reservoir device

Patent Assignee: RENAULT SAS (RENA)

Inventor: BALMY R F; BEGQUERY P R

Patent Family (1 patents, 1 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
FR 2871945	A1	20051223	FR 20046536	A	20040616	200606 B

Priority Applications (no., kind, date): FR 20046536 A 20040616

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
FR 2871945	A1	FR	28	6	

Alerting Abstract FR A1

NOVELTY - The system has a heat reservoir device (48) accumulating excess energy produced by a reformer device (9), in the form of heat during reduction phase of a requested electrical energy. A control unit (55) activates, during transitional increase of the energy, production of additional water vapor by using the heat accumulated in the reservoir device. The control unit receives various information originating from components of the system.

DESCRIPTION - An INDEPENDENT CLAIM is also included for a method for controlling a fuel cell system.

USE - Used as a power module for supplying electrical energy for an electric traction motor of a motor vehicle (claimed) and for a battery.

ADVANTAGE - The control unit activates the production of the additional water vapor using the heat accumulated in the heat reservoir device, during transitional increase of the requested electrical energy, thus assuring a rapid increase in power of the reformer device and hence increasing the operation dynamics of the reformer device. The dynamics of the reformer device is increased during change of the operating points without generating additional energy cost, thus increasing efficiency of the system. The system can be integrated easily in the motor vehicle.

DESCRIPTION OF DRAWINGS - The drawing shows main components of a power module.

- 9 Reformer device
- 13 Heat exchanger
- 48 Heat reservoir device
- 55 Control unit
- 56 Temperature sensor

Title Terms/Index Terms/Additional Words: FUEL; CELL; SYSTEM; MOTOR; VEHICLE; CONTROL; UNIT; ACTIVATE; TRANSITION; INCREASE; REQUEST; ELECTRIC; ENERGY; PRODUCE; ADD; WATER; VAPOUR; HEAT; ACCUMULATE; RESERVOIR; DEVICE

Class Codes

International Classification (Main): H01M-008/04

(Additional/Secondary): B60L-011/18

ECLA: B60L-011/18R, C01B-003/38, C01B-003/38A, H01M-008/04B10,

H01M-008/04C2E1, H01M-008/04H, H01M-008/06B2, H01M-016/00F  
ICO: M01B-203:02B4B, M01B-203:02B4F, M01B-203:02H2, M01B-203:04H2, M01B-203:04P12,  
M01B-203:04P2, M01B-203:06H, M01B-203:12H, M01B-203:16F2, M01B-203:16L  
File Segment: EPI;  
DWPi Class: X16; X21  
Manual Codes (EPI/S-X): X16-C09; X21-A01F; X21-B01A

24/5/3 (Item 3 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0015253478 - Drawing available

WPI ACC NO: 2005-603564/200562

Related WPI Acc No: 2005-603569

XRPX Acc No: N2005-494992

Hybrid electric vehicle (HEV), has MRMPGS having permanent magnet rotor type machine with selected BEMF voltage value and selected machine inductance value

Patent Assignee: GANEV E (GANEV-I); HONEYWELL INT INC (HONE)

Inventor: GANEV E

Patent Family (2 patents, 1 countries)

Patent	Number	Kind	Date	Number	Kind	Date	Update
	US 20050179264	A1	20050818	US 2004779720	A	20040218	200562 B
				US 2004950107	A	20040924	
	US 7148649	B2	20061212	US 2004779720	A	20040218	200701 E
				US 2004950107	A	20040924	

Priority Applications (no., kind, date): US 2004779720 A 20040218; US 2004950107 A 20040924

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20050179264	A1	EN	18	10	C-I-P of application US 2004779720
US 7148649	B2	EN			C-I-P of application US 2004779720
					C-I-P of patent US 7002317

Alerting Abstract US A1

NOVELTY - A matched reactance machine power generation system (MRMPGS) has permanent magnet rotor type machine having selected back electromotive force (BEMF) voltage value and selected machine inductance value. The machine inductance value is selected based on machine reactance value and frequency value which correspond to proportional increase in selected BEMF voltage value between first and second machine speeds.

DESCRIPTION - The BEMF voltage value is selected having line-to-line peak voltage that is equal to a desired terminal voltage of the machine at a first machine speed.

An INDEPENDENT CLAIM is also included for a method for providing constant voltage power for electric distribution system of HEV.

USE - Hybrid electric vehicle (HEV).

ADVANTAGE - Simplifies power generation hardware. Provides battery recharge operations without costly DC/DC converter.

Provides continuous vehicle dynamic braking and power dissipation of excessive power. Provides acceptable DC voltage variation at any operating conditions including variable prime mover speed and vehicle dynamic braking mode. Reduces filtering hardware. Reduces overall cost and improves affordability.

DESCRIPTION OF DRAWINGS - The figure is the block diagram of the system architecture for power generation system of HEV.

Title Terms/Index Terms/Additional Words: HYBRID; ELECTRIC; VEHICLE; PERMANENT; MAGNET; ROTOR; TYPE; MACHINE; SELECT; VOLTAGE; VALUE; INDUCTANCE

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

H02J-0003/24 A I R 20060101  
H02P-0008/00 A I F B 20060101  
H02P-0009/48 A I R 20060101  
H02J-0003/24 C I R 20060101  
H02P-0008/00 C I F B 20060101  
H02P-0009/00 C I R 20060101

ECLA: H02J-003/24, H02P-009/48

US Classification, Current Main: 290-04000C, 318-701000; Secondary: 318-727000, 318-801000, 322-090000, 322-094000, 363-127000

US Classification, Issued: 29040.C, 318701, 318727, 318801, 32290, 32294, 363127

File Segment: EPI;

DWPI Class: T01; X13; X21

Manual Codes (EPI/S-X): T01-J07D1; X13-G02T3; X13-G10; X13-U01; X21-A01D1; X21-A02A; X21-B01B

24/5/4 (Item 4 from file: 350) \*\*\*\*\*Your case\*\*\*\*\*

DIALOG(R)File 350:Derwent WPIX

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0014469359 - Drawing available

WPI ACC NO: 2004-660778/200464

KRPX Acc No: N2004-523144

Series-hybrid vehicle electric power generation controlling method, involves receiving power rate of onboard electrical loads and determining power supply distribution to onboard battery based on information on power generation costs

Patent Assignee: DENSO CORP (NPDE); NIPPONDENSO CO LTD (NPDE)

Inventor: OBAYASHI K; TANI K; TANI Y

Patent Family (6 patents, 4 countries)

Patent		Application				
Number	Kind	Date	Number	Kind	Date	Update
US 20040164616	A1	20040826	US 2004784273	A	20040224	200464
DE 102004009146	A1	20040902	DE 102004009146	A	20040225	200464
FR 2851516	A1	20040827	FR 20041831	A	20040224	200464
JP 2004260908	A	20040916	JP 200347888	A	20030225	200464
JP 2006339165	A	20061214	JP 200347888	A	20030225	200701
			JP 2006168703	A	20060519	
JP 3896973	B2	20070322	JP 200347888	A	20030225	200723
						E

Priority Applications (no., kind, date): JP 200347888 A 20030225; JP 2006168703 A 20060619

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes	
US 20040164616	A1	EN	16	9		
JP 2004260908	A	JA	17			
JP 2006339165	A	JA	15		Division of application	JP 200347888

## Alerting Abstract US A1

NOVELTY - The method involves obtaining information on power generation costs. A power supply distribution of the power sources is adjusted based on the information on the power generation costs and the available power supplies from the power sources. A power rate of the onboard electrical loads is received. A power supply distribution to the onboard battery is determined based on the obtained information.

USE - Used for controlling power generation for a electric system of a series-hybrid vehicle having multiple power sources.

ADVANTAGE - The determination of the onboard battery power supply distribution allows effective power generation cost management of the electric system, thereby improving the fuel economy of the vehicle.

## DESCRIPTION OF DRAWINGS - The drawing shows a vehicular electric system.

100 Belt

101 Engine

102 Generator

103 Battery

108 Power supply lines

Title Terms/Index Terms/Additional Words: SERIES; HYBRID; VEHICLE; ELECTRIC; POWER; GENERATE; CONTROL; METHOD; RECEIVE; RATE; LOAD; DETERMINE; SUPPLY; DISTRIBUTE; BATTERY; BASED; INFORMATION; COST

## Class Codes

International Classification (Main): B60R-016/02

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60K-0025/00	A	I	L	B	20060101
B60K-0025/00	A	I	L	R	20060101
B60K-0006/04	A	I		R	20060101
B60L-0011/14	A	I	L	B	20060101
B60L-0011/14	A	I	L	R	20060101
B60L-0011/18	A	I	L	B	20060101
B60L-0011/18	A	I		R	20060101
B60L-0015/20	A	I		R	20060101
B60R-0016/02	A	I	F	R	20060101
B60R-0016/033	A	I	L	B	20060101
B60R-0016/033	A	I	L	R	20060101
B60T-0001/10	A	I		R	20060101
B60T-0013/58	A	I		R	20060101
B60W-0010/08	A	I	L	B	20060101
B60W-0010/08	A	I	L	R	20060101
B60W-0010/18	A	I	L	B	20060101
B60W-0010/18	A	I	L	R	20060101
B60W-0010/26	A	I	F	B	20060101
B60W-0010/26	A	I	L	R	20060101
B60W-0010/26	A	N	L	B	20060101
B60W-0020/00	A	I	L	B	20060101
B60W-0020/00	A	I	L	R	20060101
B60W-0020/00	A	N	L	B	20060101
H01M-0010/44	A	I	L	B	20060101
H01M-0010/44	A	I	L	R	20060101
H01M-0010/48	A	I	F	B	20060101
H02J-0007/00	A	I	L	B	20060101
H02J-0007/00	A	N		R	20060101
H02J-0007/14	A	N		R	20060101

B02J-0007/34 A I L B 20060101  
 B60K-0025/06 C I L B 20060101  
 B60K-0025/06 C I L R 20060101  
 B60K-0006/00 C I R 20060101  
 B60L-0011/14 C I L B 20060101  
 B60L-0011/14 C I L R 20060101  
 B60L-0011/18 C I L B 20060101  
 B60L-0011/18 C I R 20060101  
 B60L-0015/20 C I R 20060101  
 B60R-0016/02 C I F R 20060101  
 B60R-0016/03 C I L B 20060101  
 B60R-0016/03 C I L R 20060101  
 B60R-0001/06 C I R 20060101  
 B60T-0013/10 C I R 20060101  
 B60W-0010/08 C I L B 20060101  
 B60W-0010/08 C I L R 20060101  
 B60W-0010/18 C I L B 20060101  
 B60W-0010/18 C I L R 20060101  
 B60W-0010/26 C I F B 20060101  
 B60W-0010/26 C I L R 20060101  
 B60W-0010/26 C N L B 20060101  
 B60W-0020/00 C I L B 20060101  
 B60W-0020/00 C I L R 20060101  
 B60W-0020/00 C N L B 20060101  
 H01M-0010/42 C I F B 20060101  
 H01M-0010/42 C I L B 20060101  
 H01M-0010/42 C I L R 20060101  
 H02J-0007/00 C I L B 20060101  
 H02J-0007/00 C N R 20060101  
 H02J-0007/14 C N R 20060101  
 H02J-0007/34 C I L B 20060101  
 ECLA: B60K-006/46, B60L-011/18L, B60L-011/18M,  
 B60L-015/20E, B60T-001/10, B60T-013/58C1, B60W-010/06,  
 B60W-010/18, B60W-010/26, B60W-020/00

ICO: T02J-007:00G2, T02J-007:14E

US Classification, Current Main: 307-018000; Secondary: 903-925000,  
 903-940000, 903-941000, 903-942000, 903-943000, 903-947000

US Classification, Issued: 30718

JP Classification

FI Term	Facet	Rank	Type
B60K-025/00	C		
B60K-006/04	320		
B60K-006/04	330		
B60K-006/04	370		
B60L-011/14			
B60R-016/02	645	Z	
B60R-016/02	670	B	
B60R-016/02	670	D	
H01M-010/44	A		
H01M-010/48	P		
H02J-007/00	P		
B60L-011/18	A	ZHV	
H02J-007/34	C	ZHV	

F-Term	View	Point	Additional
Theme	+ Figure	Code	
3D015			

3D035  
3D037  
3D202  
5G003  
5G503  
5H030  
5H115  
5G003 AA07  
5H030 AA09  
5H030 AS08  
5G003 BA01  
5H030 BB01  
5H030 BB10  
5G003 DA04  
5G003 FA06  
5H030 FF41  
5H115 PA11  
5H115 PA12  
5H115 PC06  
5H115 PG04  
5H115 PI11  
5H115 PI16  
5H115 PI22  
5H115 PI29  
5H115 PO02  
5H115 PO17  
5H115 PU01  
5H115 PU23  
5H115 PU25  
5H115 Q104  
5H115 QN03  
5H115 RE03  
5H115 SE04  
5H115 SE05  
5H115 SE06  
5H115 TE02  
5H115 TE03  
5H115 TI01  
5H115 TI05  
5H115 TI06  
5H115 TI10  
5H115 TO12  
5H115 TO14  
5H115 TO23  
5H115 TO30

File Segment: EngPI; EPI;  
DWEI Class: U24; X16; X21; Q14; Q13; Q17  
Manual Codes (EPI/S-X): U24-H; X16-G02; X21-A01D3;  
X21-B01A1A; X21-B01B

24/5/5 (Item 5 from file: 350)  
DIALOG(R)File 350:Derwent WPIX  
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0014310725 - Drawing available  
WPI ACC NO: 2004-497880/200447

Related WPI Acc No: 2003-039801

XRFX Acc No: N2004-393150

Network communication system for real time buying and selling of electricity, has calculating device provides debit charge of cost of consumed fuel and credit charge of value of electricity generated

Patent Assignee: HYDROGENICS CORP (HYDR-N)

Inventor: HARDWICK A; MCARTHUR G

Patent Family (2 patents, 1 countries)

Patent	Application
Number	Kind Date Number Kind Date Update
US 20040110044	A1 20040610 US 2001808042 A 20010315 200447 B
	US 2003725546 A 20031203
US 7141321	B2 20061128 US 2003725546 A 20031203 200679 E

Priority Applications (no., kind, date): US 2001808042 A 20010315; US 2003725546 A 20031203

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20040110044	A1	EN	26	7	Continuation of application US 2001808042
					Continuation of patent US 6673479

#### Alerting Abstract US A1

NOVELTY - A calculating device collects data on the quantity of fuel consumed and the amount of electricity generated to compute the cost of fuel and the value of electricity generated, and to provide a debit charge of cost of fuel consumed and credit charge of the value of electricity generated, when fuel is consumed by a vehicle and electricity is generated by the vehicle.

DESCRIPTION - Vehicle connections are arranged to cooperate with the vehicle for supply of fuel to the vehicle and for transfer of electricity to and from the vehicle. The calculating device determines the current cost of fuel and price paid for generating electricity using data and information received via a network, and determines whether to make fuel cell powered vehicle available for generation of electricity based on cost of fuel and price paid for generating electricity by performing one or more calculations based on the received data and information. A controller regulates the process of consumption of fuel by the vehicle and the generation of electricity by the vehicle based on the determination result of the calculating device.

INDEPENDENT CLAIMS are also included for the following:

- 1.a system of generating electrical power utilizing fuel cell power units of vehicle;
- 2.a system of generating electricity from fuel cell power unit of fuel cell powered vehicle;
- 3.a system of generating electrical power from vehicle including fuel cell power unit and financing cost of vehicle;
- 4.a brokerage system for trading electricity; and
- 5.a method for trading electricity.

USE - For enabling real time buying and selling of electricity generated by fuel cell powered vehicles or stationary fuel cells to consumer.

ADVANTAGE - Provides real time communication between fuel cell

powered vehicle and consumer of electricity to facilitate real time buying and selling of electrical power. Provides accounting for fuel consumed and electricity generated by vehicle. Provides proper metering and billing for fuel used and energy generated. Provides timely and accurate communication between all of the participants. Provides availability of unbiased information to all of participants.

DESCRIPTION OF DRAWINGS - The figure shows the schematic diagram of real time network communication system.

Title Terms/Index Terms/Additional Words: NETWORK; COMMUNICATE; SYSTEM; REAL; TIME; BUY; SELL; ELECTRIC; CALCULATE; DEVICE; DEBIT; CHARGE; COST; CONSUME; FUEL; CREDIT; VALUE; GENERATE

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/18 A I L B 20060101  
B60L-0011/18 A I R 20060101  
G06Q-0050/00 A I F R 20060101  
H01M-0008/00 A I F B 20060101  
H01M-0008/04 A I L R 20060101  
B60L-0011/18 C I L B 20060101  
B60L-0011/18 C I R 20060101  
G06Q-0050/00 C I F R 20060101  
H01M-0008/00 C I F B 20060101  
H01M-0008/04 C I L R 20060101

ECLA: B60L-011/18L7

US Classification, Current Main: 429-013000; Secondary: 180-065300

US Classification, Issued: 18065.3, 42913, 42912, 42913, 18065.3, 70528, 705412

File Segment: EngPI; EPI;

DWPI Class: T01; W05; X12; X16; X21; Q14

Manual Codes (EPI/S-X): T01-N01A2; W05-D08C1; X12-H03; X16-C; X21-A01F; X21-B01A1A

24/5/6 (Item 6 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0013613468 - Drawing available

WPI ACC NO: 2003-708733/200367

XRPX Acc No: N2003-566360

Output power control system for electric vehicle, has controller network area which adjusts electrical energy output from high power secondary battery, within specific range according to requirement of load

Patent Assignee: IND TECHNOLOGY RES INST (INTE-N); ZH KOGYO GIJUTSU

KENKYUHIN (KOGY-N)

Inventor: GO K; HSIAO J; HSU C; HUNG J; JO K; KO K; SHO Z; SHU P; SO H; WU C

Patent Family (2 patents, 2 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 20030105562	A1	20030605	US 2001997010	A	20011130	200367 B
JP 2003168459	A	20030613	JP 2001359658	A	20011126	200367 NCE

Priority Applications (no., kind, date): JP 2001359658 A 20011126; US 2001997010 A 20011130

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
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Alerting Abstract US A1

NOVELTY - A management unit (60) controls a flow path of the electric energy which is output from a high power secondary battery (50) to a driving unit (30). A controller network area (70) adjusts the output electrical energy within a specific range according to the requirement of load.

USE - For electric vehicles such as electric motorcycle and electric bicycle.

ADVANTAGE - The network eliminates the problems such as long time of charging, short time of sustaining cruise, too heavy battery and insufficient facility for charging, thereby constructing the control system at low cost with enhanced efficiency.

DESCRIPTION OF DRAWINGS - The figure shows the block diagram of the output power control system.

20 polymer electrolyte membrane fuel cell

30 driving unit

50 high power secondary battery

60 electric energy management unit

70 controller area network

Title Terms/Index Terms/Additional Words: OUTPUT; POWER; CONTROL; SYSTEM; ELECTRIC; VEHICLE; NETWORK; AREA; ADJUST; ENERGY; HIGH; SECONDARY; BATTERY; SPECIFIC; RANGE; ACCORD; REQUIRE; LOAD

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/18 A I L R 20060101

B60L-0011/18 A I R 20060101

H01M-008/00 A I F R 20060101

H01M-008/04 A I L R 20060101

H01M-008/10 A I L R 20060101

B60L-0011/18 C I L R 20060101

B60L-0011/18 C I R 20060101

H01M-008/00 C I F R 20060101

H01M-008/04 C I L R 20060101

H01M-008/10 C I L R 20060101

ECLA: B60L-011/18R4

US Classification, Current Main: 701-022000; Secondary: 180-065300

US Classification, Issued: 70122, 18065.3

JP Classification

FI Term Facet Rank Type

B60L-011/18 G

H01M-008/00 A

H01M-008/00 Z

H01M-008/04 P

H01M-008/10

F-Term View Point Additional

Theme + Figure Code

5H026

5H027

5H115

5H026 AA06

5H027	AA06
5H027	DD00
5H027	DD03
5H026	HH06
5H027	KK52
5H027	MM27
5H115	PA11
5H115	PG04
5H115	PI18
5H115	PU01
5H115	SE06
5H115	SE10
5H115	TI05
5H115	TI06
5H115	TO12
5H115	TO13
5H115	TR01
5H115	TR19
5H115	TU01
5H115	TU04

File Segment: EngPI; EPI;

DWPI Class: U24; X21; Q14

Manual Codes (EPI/S-X): U24-E; X21-A01C; X21-A01G; X21-B01B

24/5/7 (Item 7 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0013244142 - Drawing available

WPI ACC NO: 2003-329316/200331

KRXPX Acc No: N2003-263451

Battery power source device for driving motor in electric vehicle, reverses output signal to discharge and charge respective capacitors, when capacitor voltage reaches predetermined threshold value

Patent Assignee: MATSUSHITA DENKI SANGYO KK (MATU); MATSUSHITA ELECTRIC IND CO LTD (MATU); TOYOTA JIDOSHA KK (TOYT)

Inventor: NAKANISHI T

Patent Family (3 patents, 2 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
US 20030001544	A1	20030102	US 2002172197	A	20020614	200331 B
US 6573688	B2	20030603	US 2002172197	A	20020614	200339 E
JP 2003004822	A	20030108	JP 2001182375	A	20010615	200340 E

Priority Applications (no., kind, date): JP 2001182375 A 20010615; US 2002172197 A 20020614

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20030001544	A1	EN	16	7	
JP 2003004822	A	JA	12		

Alerting Abstract US A1

NOVELTY - The control device has detectors which outputs current signals proportional to discharge current and charge current, flowing through current detection resistor (21) at the time of discharging and charging of

battery (20) respectively. The pulse generation unit reverses the output signal to discharge and to charge respective capacitors, when the voltage of capacitors reaches a predetermined threshold value.

USE - The battery power source device e.g. nickel-metal hydride (Ni-MH) batteries is used as main power source for driving motor in electric vehicle (PEV) and hybrid vehicle (HEV).

ADVANTAGE - Detects the charge/discharge current flowing through secondary battery with high reliability and high precision. Prevents malfunctioning of electronic circuits mounted inside the control device and improves the reliability of power supply system. Eliminates offset error in the current at any time, even when component characteristic vary with fluctuation in environmental temperature.

DESCRIPTION OF DRAWINGS - The figure shows a schematic configuration of driving system of hybrid vehicle.

20battery

21current detection resistor

Title Terms/Index Terms/Additional Words: BATTERY; POWER; SOURCE; DEVICE; DRIVE; MOTOR; ELECTRIC; VEHICLE; REVERSE; OUTPUT; SIGNAL; DISCHARGE; CHARGE; RESPECTIVE; CAPACITOR; VOLTAGE; REACH; PREDETERMINED; THRESHOLD; VALUE

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/18	A	I	R	20060101	
B60L-0003/00	A	I	L	R	20060101
G01R-0031/36	A	I	F	R	20060101
H01M-0010/48	A	I	L	R	20060101
H02J-0007/00	A	I	I	R	20060101
H02J-0007/10	A	I	L	R	20060101
B60L-0011/18	C	I	I	R	20060101
B60L-0003/00	C	I	L	R	20060101
G01R-0031/36	C	I	F	R	20060101
H01M-0010/42	C	I	L	R	20060101
H02J-0007/00	C	I	I	R	20060101
H02J-0007/10	C	I	L	R	20060101

ECLA: B60L-011/18M, H02J-007/00F

US Classification, Current Main: 320-135000, 320-162000; Secondary: 320-141000

US Classification, Issued: 320162, 320135, 320141

#### JP Classification

FI Term	Facet	Rank	Type
G01R-031/36	A		
H01M-010/48	P		
H02J-007/00	P		
H02J-007/10	H		
B60L-003/00	S	ZHV	

F-Term	View	Point	Additional
Theme	+ Figure		Code
2G016			
5G003			
5G503			
5H030			
5H115			

5G003	AA07
5H030	AS03
5H030	AS08
5G003	BA01
5G003	BA02
5G003	BA03
5G003	CA01
2G016	CA03
2G016	CB13
2G016	CB21
2G016	CB22
2G016	CB31
2G016	CB32
2G016	CC01
2G016	CC04
2G016	CC05
2G016	CC07
2G016	CC09
2G016	CC12
2G016	CC16
2G016	CC21
2G016	CC23
2G016	CC27
2G016	CD02
2G016	CD04
2G016	CD10
2G016	CD14
2G016	CF06
5G003	DA07
5G003	EA05
5G003	FA06
5H030	FF42
5G003	GA01
5G003	GB06
5G003	GC05
5H115	PA11
5H115	PC06
5H115	PG04
5H115	PI16
5H115	PI21
5H115	PI24
5H115	PI29
5H115	PO06
5H115	PO09
5H115	PU08
5H115	PU23
5H115	PU25
5H115	PV09
5H115	PV22
5H115	QE05
5H115	QE10
5H115	QI04
5H115	QN03
5H115	QN09
5H115	RB08
5H115	RB27
5H115	RE02

5H115	RE05
5H115	SE04
5H115	SE05
5H115	SE06
5H115	SJ11
5H115	TE02
5H115	TI02
5H115	TI06
5H115	TR19
5H115	TU01

File Segment: EPI;

DWPI Class: S01; T01; X16; X21; X22

Manual Codes (EPI/S-X): S01-D01A; S01-G06A; T01-J07D1; X16-H01; X16-H03;  
X21-A01D; X21-A01F; X21-A02; X21-A06; X21-B01; X22-F01; X22-P04

24/5/8 (Item 8 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0013226589 - Drawing available

WPI ACC NO: 2003-311378/200330

XRPX Acc No: N2003-247837

Power source system for hybrid-series vehicle, has controller controls output of DC/DC converter which converts high voltage into low voltage in accordance with states of generator, charges of batteries and loads

Patent Assignee: YAZAKI CORP (YAZA)

Inventor: HASEGAWA T; TAMAI Y

Patent Family (5 patents, 3 countries)

Patent				Application			
Number	Kind	Date	Number	Kind	Date	Update	
US 20020190690	A1	20021219	US 2002162687	A	20020606	200330	B
DE 10226333	A1	20030220	DE 10226333	A	20020613	200330	E
JP 2002374602	A	20021226	JP 2001180079	A	20010614	200330	E
US 6677725	B2	20040113	US 2002162687	A	20020606	200405	E
JP 3749143	B2	20060222	JP 2001180079	A	20010614	200618	E

Priority Applications (no., kind, date): JP 2001180079 A 20010614; US 2002162687 A 20020606

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20020190690	A1	EN	12	4	
JP 2002374602	A	JA	12		
JP 3749143	B2	JA	17		Previously issued patent JP 2002374602

Alerting Abstract US A1

NOVELTY - A DC/DC converter (21) receives high voltage from a battery (12) and converts into low voltage to be supplied to another battery (13). A controller (20) controls output of converter in accordance with one of states of a generator (10), charge of batteries and loads (14-1 - 14-n).

USE - Power source system for hybrid series vehicle.

ADVANTAGE - Since conversion of high voltage into low voltage is performed based on states of generator charges of batteries and loads, improves fuel cost and effectively protects battery.

DESCRIPTION OF DRAWINGS - The figure shows the block diagram of power supply system of vehicle.

10 Generator  
12,13 Batteries  
20 Controller  
21 DC/DC converter  
14-1 - 14-n Loads

Title Terms/Index Terms/Additional Words: POWER; SOURCE; SYSTEM; HYBRID;  
SERIES; VEHICLE; CONTROL; OUTPUT; DC; CONVERTER; CONVERT; HIGH; VOLTAGE;  
LOW; ACCORD; STATE; GENERATOR; CHARGE; BATTERY; LOAD

Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60K-0006/04	A	I	L	R	20060101
B60L-0011/12	A	I	F	B	20060101
B60L-0011/12	A	I	L	R	20060101
B60W-0010/00	A	I	L	B	20060101
B60W-0010/00	A	I	L	R	20060101
B60W-0010/26	A	I	L	R	20060101
B60W-0020/00	A	I	L	B	20060101
B60W-0020/00	A	I	L	R	20060101
H02J-0007/14	A	I	L	B	20060101
H02J-0007/14	A	I	L	R	20060101
H02P-0009/04	A	I	L	B	20060101
H02P-0009/04	A	I	L	R	20060101
H02P-0009/30	A	I	L	R	20060101
B60K-0006/00	C	I	L	R	20060101
B60L-0011/02	C	I	F	B	20060101
B60L-0011/02	C	I	L	R	20060101
B60W-0010/00	C	I	L	B	20060101
B60W-0010/00	C	I	L	R	20060101
B60W-0010/26	C	I	L	R	20060101
B60W-0020/00	C	I	L	B	20060101
B60W-0020/00	C	I	L	R	20060101
H02J-0007/14	C	I	L	B	20060101
H02J-0007/14	C	I	L	R	20060101
H02P-0009/04	C	I	L	B	20060101
H02P-0009/04	C	I	L	R	20060101
H02P-0009/14	C	I	L	R	20060101

ECLA: H02J-007/14D, H02P-009/30D2

US Classification, Current Main: 320-103000; Secondary: 903-903000,  
903-907000, 903-943000

US Classification, Issued: 320103, 320103, 320116

JP Classification

JP Term	Facet	Rank	Type
B60K-006/04			
B60K-006/04		130	
B60K-006/04		300	
B60K-006/04		330	
B60K-006/20		300	
B60K-006/20		330	
B60K-006/28			
B60K-009/00	E		
H02J-007/14	A		
H02P-009/04	M		
B60K-006/04	ZHV		

F-Term	View	Point	Additional
Theme	+ Figure		Code
3D035			
3D202			
5G060			
5H115			
5H590			
5H590	AA02		
5G060	AA04		
5G060	AA05		
5G060	AA08		
5G060	AA20		
5H590	AB02		
5H590	AB05		
5G060	BA08		
5G060	CA06		
5H590	CA07		
5H590	CA23		
5H590	CC11		
5H590	CE05		
5H590	CE08		
5G060	DB07		
5G060	DB08		
5H590	DD64		
5H590	EA01		
5H590	EA05		
5H590	EA07		
5H590	EA10		
5H590	EB12		
5H590	EB21		
5H590	FA08		
5H590	HA02		
5H590	HA04		
5H590	HA11		
5H590	HA18		
5H590	JA08		
5H115	PA08		
5H115	PA12		
5H115	PC06		
5H115	PG04		
5H115	PI14		
5H115	PI16		
5H115	PI23		
5H115	PI29		
5H115	PI30		
5H115	PO02		
5H115	PO06		
5H115	PO17		
5H115	PU02		
5H115	PU26		
5H115	PV02		
5H115	QE08		
5H115	QE10		
5H115	QI14		
5H115	QN03		

5H115 QN08  
 5H115 SEO4  
 5H115 SEO6  
 5H115 TB01  
 5H115 TI02  
 5H115 TI05  
 5H115 TI06  
 5H115 TI10  
 5H115 TO05  
 5H115 TO12  
 5H115 TO21  
 5H115 TR19  
 5H115 TU02  
 5H115 TU17

File Segment: EngPI; EPI;  
 DWPI Class: X12; X13; X16; X21; X22; Q14  
 Manual Codes (EPI/S-X): X12-J01A; X12-J02; X13-G03X; X16-G; X21-A01D3  
 ; X21-A06; X21-B01A1A; X21-B01B; X21-B04C; X21-B05; X22-P04

24/5/9 (Item 9 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0012962694 - Drawing available

WPI ACC NO: 2003-039801/200303

Related WPI Acc No: 2004-497880

XRPX Acc No: N2003-031158

Real-time buying and selling of electrical power between fuel cell powered vehicle and consumer of electricity, involves providing debit and credit charges for cost of fuel consumed and generated electricity value

Patent Assignee: HARDWICK A (HARD-I); HYDROGENICS CORP (HYDR-N); MCARTHUR G (MCAR-I)

Inventor: HARDWICK A; MCARTHUR G

Patent Family (18 patents, 99 countries)

Patent Number	Kind	Date	Application		
			Number	Kind	Date
US 20020132144	A1	20020919	US 2001808042	A	20010315 200303
WO 2002074573	A2	20020926	WO 2002CA316	A	20020307 200303
EP 1370439	A2	20031217	EP 2002708059	A	20020307 200402
			WO 2002CA316	A	20020307
US 6673479	B2	20040106	US 2001808042	A	20010315 200411
KR 2003081478	A	20030107	KR 2003711437	A	20030901 200413
AU 2002242515	A1	20021003	AU 2002242515	A	20020307 200432
AU 2002242515	A2	20021003	AU 2002242515	A	20020307 200432
CA 2438128	C	20040810	CA 2438128	A	20020307 200454
			WO 2002CA316	A	20020307
JP 2004526245	W	20040826	JP 2002573256	A	20020307 200456
			WO 2002CA316	A	20020307
MX 2003008155	A1	20040301	WO 2002CA316	A	20020307 200475
			MX 20038155	A	20030909
NZ 528673	A	20050128	NZ 528673	A	20020307 200513
			WO 2002CA316	A	20020307
AU 2005200813	A1	20050317	AU 2002242515	A	20020307 200524
			AU 2005200813	A	20050223
NZ 534615	A	20050429	NZ 528673	A	20020307 200532
			NZ 534615	A	20020307

AU 2002242515	B2	20050407	AU 2002242515	A	20020307	200533	E
AU 2005200813	A2	20050317	AU 2002242515	A	20020307	200545	NCE
			AU 2005200813	A	20050223		
CN 1635962	A	20050706	CN 2002806466	A	20020307	200574	E
			WO 2002CA316	A	20020307		
JP 2007020397	A	20070125	JP 2002573256	A	20020307	200710	E
			JP 2006210430	A	20060802		
IN 200404027	P1	20070406	WO 2002CA316	A	20041217	200735	E
			IN 2004DN4027	A	20041217		

Priority Applications (no., kind, date): US 2001808042 A 20010315; AU 2005200813 A 20050223

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
US 20020132144	A1	EN	25	7	

WO 2002074573 A2 EN

National Designated States,Original: AE AG AL AM AT AU AZ BA BB BG BR BY  
 BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID  
 IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ  
 NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ  
 VN YU ZA ZM ZW

Regional Designated States,Original: AT BE CH CY DE DK EA ES FI FR GB GH  
 GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW  
 EP 1370439 A2 EN PCT Application WO 2002CA316  
 Based on OPI patent WO 2002074573

Regional Designated States,Original: AL AT BE CH CY DE DK ES FI FR GB GR  
 IE IT LI LT LU LV MC MK NL PT RO SE SI TR

AU 2002242515 A1 EN Based on OPI patent WO 2002074573

AU 2002242515 A2 EN Based on OPI patent WO 2002074573

CA 2438128 C EN PCT Application WO 2002CA316

Based on OPI patent WO 2002074573

JP 2004526245 W JA 100 PCT Application WO 2002CA316

Based on OPI patent WO 2002074573

MX 2003008155 A1 ES PCT Application WO 2002CA316

Based on OPI patent WO 2002074573

NZ 528673 A EN PCT Application WO 2002CA316

Future Division patent NZ 534615

AU 2005200813 A1 EN Based on OPI patent WO 2002074573

Division of application AU 2002242515

NZ 534615 A EN Division of application NZ 528673

AU 2002242515 B2 EN Division of patent NZ 528673  
 Previously issued patent AU 2002242515

AU 2005200813 A2 EN Based on OPI patent WO 2002074573  
 Division of application AU 2002242515

CN 1635962 A ZH PCT Application WO 2002CA316

JP 2007020397 A JA 33 Division of application JP 2002573256

IN 200404027 P1 EN PCT Application WO 2002CA316

#### Alerting Abstract US A1

NOVELTY - A fuel cell powered vehicle for electricity generation is determined based on the cost of fuel and price paid for the electricity generation. When fuel is consumed for electricity generation by the vehicle, the cost of fuel and value of generated electricity are calculated. A debit charge is provided for the cost of fuel

consumed and a credit charge is provided for the generated electricity value.

DESCRIPTION - INDEPENDENT CLAIMS are included for the following:

1. Electrical power generation method using fuel cell power units of vehicles;
2. Electricity generation enabling system for fuel cell powered vehicle; and
3. Electricity generating method from fuel cell power unit.

USE - For enabling real-time buying and selling of electrical power between fuel cell powered vehicle and a consumer of electricity.

ADVANTAGE - The fuel cells of vehicle provides an interruptible power supply that is readily turned ON and OFF on controlled time scales. Enables pricing of electricity to be varied on short-time scales.

DESCRIPTION OF DRAWINGS - The figure shows an illustrative view of distributed energy system.

Title Terms/Index Terms/Additional Words: REAL; TIME; BUY; SELL; ELECTRIC; POWER; FUEL; CELL; VEHICLE; CONSUME; DEBIT; CREDIT; CHARGE; COST; GENERATE; VALUE

Class Codes

International Classification (Main): B60L-011/18, G06F-017/60,  
H01M-008/00

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/18	A	I	R	20060101	
G06Q-0050/00	A	I	F	R	20060101
H01M-0008/00	A	I	L	B	20060101
H01M-0008/04	A	I	L	B	20060101
H01M-0008/04	A	I	L	R	20060101
H02J-0003/00	A	I	F	B	20060101
H02J-0003/38	A	I	L	B	20060101
B60L-0011/18	C	I	R	20060101	
G06Q-0050/00	C	I	F	R	20060101
H01M-0008/00	C	I	L	B	20060101
H01M-0008/04	C	I	L	B	20060101
H01M-0008/04	C	I	L	R	20060101
H02J-0003/00	C	I	F	B	20060101
H02J-0003/38	C	I	L	B	20060101

ECLA: B60L-011/18L7

US Classification, Current Main: 429-013000; Secondary: 180-065300

US Classification, Issued: 18065.3, 42913, 42913, 180653, 70528, 705412,  
42912

JP Classification

JP Term	Facet	Rank	Type
G06F-017/60	110		
H01M-008/04	Z		
H02J-003/00	Z		
H02J-003/38	G		
H01M-008/00	Z	ZAB	
H01M-008/04	P	ZEC	

F-Term View Point Additional

Theme	+ Figure	Code
5B049		
5G066		
5H026		

5H027	AA02
5H027	AA05
5G066	HA15
5G066	HA17
5G066	HB07
5H027	KK51
5H027	MM26
5H027	MM27

File Segment: EngPI; EPI;  
 DWPI Class: T01; T05; X16; X21; Q14  
 Manual Codes (EPI/S-X): T01-J04A; T01-J07D1; T01-N01A1; T01-N01A2A; T05-H06  
 ; T05-L02; X16-C; X21-A01F; X21-B01A

24/5/11 (Item 11 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0011057393 - Drawing available

WPI ACC NO: 2001-459221/200150

XRPX Acc No: N2001-340521

Power controller for a golf trolley powered by electric motor, has a feedback system with micro-controller and motor speed determination unit, to adjust level of power supplied to the motor from the battery

Patent Assignee: STURDY FRANCIS NAGLE & CO LTD (STUR-N)

Inventor: FRANCIS G D; NAGLE V A; STURDY S

Patent Family (3 patents, 2 countries)

Patent		Application			
Number	Kind	Date	Number	Kind	Date
GB 2357163	A	20010613	GB 200022923	A	20000919
GB 2357163	B	20030430			200330
IE 83341	B	20040310	IE 1999786	A	19990921
					200419
					E

Priority Applications (no., kind, date): IE 1999786 A 19990921

#### Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
GB 2357163	A	EN	18	3	
IE 83341	B	EN			

#### Alerting Abstract GB A

NOVELTY - The power control device (10) comprises units (17,18) for detecting and measuring fluctuations in the current flow to the motor (11) in use, a unit (19) for determining the speed of the motor (11) on the basis of the measured fluctuations, and a unit (16, 19) for controlling the speed of the motor (11). The relationship between the speed of the motor (11) and the power being supplied to it is thus maintained within predetermined limits.

DESCRIPTION - The motor speed determination unit, and the motor speed controlling unit form part of a feedback system. The controller is a micro-controller in form a programmable micro-chip. The fluctuation in the current are those due to changes in the magnetic attraction/repulsion effect as the rotor poles pass towards and away from the stator poles in the motor. The fluctuations are in range 1 - 40 kHz. Power is transferred

form the battery to the motor as a series of on/off pulses of modulated width so that the ratio of the time during which the power to the motor is on to the time when it is off determines the motor speed. The pulse speed is 25 - 35 kHz.

An INDEPENDENT CLAIM is given for a method of regulating the speed of a vehicle powered by an electric motor.

USE - In a vehicle powered by an electric motor, especially a golf trolley (Claimed).

ADVANTAGE - Avoids damage to power and drive elements, e.g. during encounters with obstacles, or when being held stationary on an incline. Increases user comfort without too much production cost increase.

DESCRIPTION OF DRAWINGS - The figure shows the key elements of the power control device.

10 control device  
11 electric motor  
12 battery  
16,19 speed controlling units  
17,18 current flow detecting and measuring units

Title Terms/Index Terms/Additional Words: POWER; CONTROL; GOLF; TROLLEY; ELECTRIC; MOTOR; FEEDBACK; SYSTEM; MICRO; SPEED; DETERMINE; UNIT; ADJUST; LEVEL; SUPPLY; BATTERY

#### Class Codes

International Classification (Main): H02P-005/00  
(Additional/Secondary): H02P-007/00

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/18 A I R 20060101  
B60L-0011/18 C I R 20060101

ECLA: B60L-011/18E

File Segment: EngPI; EPI;

DWPI Class: X21; Q14

Manual Codes (EPI/S-X): X21-A01A; X21-A01F; X21-A02; X21-B02

24/5/12 (Item 12 from file: 350)

DIALOG(R)File 350:Derwent WIPIX

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0010768852 - Drawing available

WIPI ACC NO: 2001-383121/200141

XRPX Acc No: N2001-281058

Hybrid vehicle using regenerative energy recovered during downhill rolling and a road altitude calculation unit to control battery management unit comprises power converters and a drive control device

Patent Assignee: HITACHI LTD (HITA)

Inventor: AMANO M; HANIYU M; HANYU T; MASAKI R; MIYAZAKI T

Patent Family (7 patents, 27 countries)

Patent Number	Application					
	Kind	Date	Number	Kind	Date	Update
EP 1086848	A2	20010328	EP 2000119388	A	20000911	200141 B
JP 2001095105	A	20010406	JP 1999269847	A	19990924	200141 E
US 6507127	B1	20030114	US 2000668170	A	20000925	200313 E
JP 3374802	B2	20030210	JP 1999269847	A	19990924	200314 E
EP 1086848	B1	20050518	EP 2000119388	A	20000911	200538 E
DE 60020198	E	20050623	DE 60020198	A	20000911	200543 E

EP 2000119388 A 20000911  
DE 60020198 T2 20060112 DE 60020198 A 20000911 200611 E  
EP 2000119388 A 20000911  
Priority Applications (no., kind, date): JP 1999269847 A 19990924; EP  
2000119388 A 20000911

**Patent Details**

Number	Kind	Lan	Pg	Dwg	Filing Notes
EP 1086848	A2	EN	11	5	
Regional Designated States,Original: AL AT BE CH CY DE DK ES FI FR GB GR					
IE IT LI LT LU LV MC MK NL PT RO SE SI					
JP 2001095105	A	JA	7		
JP 3374802	B2	JA	7		Previously issued patent JP 2001095105
EP 1086848	B1	EN			
Regional Designated States,Original: DE FR					
DE 60020198	E	DE			Application EP 2000119388
Based on OPI patent EP 1086848					
DE 60020198	T2	DE			Application EP 2000119388
Based on OPI patent EP 1086848					

**Alerting Abstract EP A2**

**NOVELTY** - A battery (12) supplies energy to motors (8,9) controlled by electric power converters (10,11) and a drive control device (32) controls the motors to effect the desired gear changing. A calculation unit calculates the altitude of the vehicle, which is used to control the battery charging rate target value and its upper limit and the battery stores regenerative energy recovered during downhill rolling.

**DESCRIPTION** - The control device receives input from a target torque determination unit and sets the engine and motor accordingly, while controlling charging and discharging of the battery.

**USE** - Controlling battery management of a hybrid vehicle.

**ADVANTAGE** - Recovering energy during downhill rolling while preventing deterioration of fuel economy and battery life.

**DESCRIPTION OF DRAWINGS** - The drawing shows a schematic of the hybrid vehicle with the regenerative energy recovery system.

12 Battery

8,9 Motors

10,11 Power converters

32 Drive control device

**Title Terms/Index Terms/Additional Words:** HYBRID; VEHICLE; REGENERATE; ENERGY; RECOVER; DOWNSHILL; ROLL; ROAD; ALTITUDE; CALCULATE; UNIT; CONTROL; BATTERY; MANAGEMENT; COMPRISE; POWER; CONVERTER; DRIVE; DEVICE

**Class Codes**

International Classification (Main): B60L-015/20

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60K-0001/02	A	N	R	20060101	
B60K-0006/04	A	I	R	20060101	
B60L-0011/14	A	I	F	R	20060101
B60L-0011/18	A	I		R	20060101
B60L-0015/20	A	I	B	R	20060101
B60L-0015/20	A	I		R	20060101
B60L-0007/12	A	I	B	R	20060101
B60W-0010/26	A	I	L	R	20060101

B60W-0020/00 A I L R 20060101  
 C30B-0028/06 A I B 20060101  
 F16H-0003/72 A N R 20060101  
 H01H-0035/14 A I B 20060101  
 H04Q-0007/38 A I B 20060101  
 B60K-0001/00 C N R 20060101  
 B60K-0006/00 C I R 20060101  
 B60L-0011/14 C I F R 20060101  
 B60L-0011/18 C I R 20060101  
 B60L-0015/20 C I B 20060101  
 B60L-0015/20 C I R 20060101  
 B60L-0007/00 C I B 20060101  
 B60W-0010/26 C I L R 20060101  
 B60W-0020/00 C I L R 20060101  
 C30B-0028/00 C I B 20060101  
 F16H-0003/44 C N R 20060101  
 H01H-0035/14 C I B 20060101  
 H04Q-0007/38 C I B 20060101

ECLA: B60K-006/445, B60L-011/18M, B60L-015/20E, B60W-010/08,  
 B60W-010/26, B60W-020/00

ICO: L60K-001:02, L60W-409:82F, L60W-800:60K4,  
 R16H-003:72E2, R16H-003:72G

US Classification, Current Main: 290-04000C; Secondary: 290-04000A,  
 701-065000, 903-903000, 903-923000, 903-926000, 903-940000, 903-942000,  
 903-943000

US Classification, Issued: 29040.C, 29040.A, 70165

JP Classification

PI Term	Facet	Rank	Type
B60K-006/04			
B60K-006/04	330		
B60K-006/04	530		
B60K-006/04	553		
B60K-009/00	E		
B60L-011/14			
B60L-011/18	C		
B60K-006/04	ZHV		
B60L-011/18	C	ZHV	

F-Term View Point Additional

Theme	+ Figure	Code
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3D035		
3D202		
5H111		
5H115		
5H115	PC06	
5H115	PG04	
5H115	PI16	
5H115	PI24	
5H115	PI29	
5H115	PO02	
5H115	PO06	
5H115	PU08	
5H115	PU24	
5H115	PU25	
5H115	PV09	
5H115	QE04	

5H115	QE06
5H115	QI04
5H115	QN03
5H115	QN06
5H115	QN22
5H115	QN23
5H115	QN27
5H115	TB01
5H115	TD01
5H115	TI01
5H115	TO04
5H115	TO07
5H115	TO08
5H115	TO21

File Segment: EngPI; EPI;

DWPI Class: X21; X22; Q13; Q14

Manual Codes (EPI/S-X): X21-A01D; X21-B01A1A; X22-P04

24/5/16 (Item 16 from file: 350)

DIALOG(R)File 350:Derwent WPIX

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0009067186 - Drawing available

WPI ACC NO: 1998-313230/199828

XRPX Acc No: N1998-245479

Control system for hybrid vehicle - comprises current control system which sets power level from auxiliary power unit based on vehicle speed, motor load and state of charge of energy storage device for high load driving condition

Patent Assignee: AZURE DYNAMICS INC (AZUR-N); BC RES INC (BCRE-N); DROZDZ

P (DROZD-Z); YIP D (YIPD-I)

Inventor: DROZDZ P; YIP D

Patent Family (3 patents, 2 countries)

Patent Application

Number	Kind	Date	Number	Kind	Date	Update
CA 2182630	A	19980203	CA 2182630	A	19960802	199828 B
US 5898282	A	19990427	US 1997910572	A	19970801	199924 E
CA 2182630	C	20030211				200321 E

Priority Applications (no., kind, date): CA 2182630 A 19960802

Patent Details

Number	Kind	Lan	Pg	Dwg	Filing Notes
CA 2182630	A	EN	23	2	
CA 2182630	C	EN			

Alerting Abstract CA A

The control system comprises a voltage control which sets system voltage to charging voltage in low load condition and regenerative braking condition and regenerative braking condition, and sets system voltage to output voltage from the energy storage device for the high load condition.

A current control system sets output power from the auxiliary power unit to a charging level in the low load condition and regenerative braking condition, and sets the power level from the auxiliary power unit based on vehicle speed, motor load and state of charge of the energy storage device for the high load

condition. A control unit switches on the auxiliary power unit when the state of charge of the energy storage device is below a predetermined level and switches off the auxiliary power unit when the energy storage device is fully charged.

ADVANTAGE - Ensures best possible utilisation of onboard energy resources for different operating conditions of vehicle. Utilises strategy modified in real time depending on input from sensors measuring speed, current and voltage levels at different locations in system.

Title Terms/Index Terms/Additional Words: CONTROL; SYSTEM; HYBRID; VEHICLE; COMPRIZE; CURRENT; SET; POWER; LEVEL; AUXILIARY; UNIT; BASED; SPEED; MOTOR; LOAD; STATE; CHARGE; ENERGY; STORAGE; DEVICE; HIGH; DRIVE; CONDITION

#### Class Codes

International Classification (+ Attributes)

IPC + Level Value Position Status Version

B60L-0011/12 A I R 20060101

B60L-0015/20 A I R 20060101

B60L-0011/02 C I R 20060101

B60L-0015/20 C I R 20060101

ECLA: B60L-011/12D, B60L-015/20E

US Classification, Current Main: 318-139000; Secondary: 180-065400, 318-368000, 318-376000, 318-432000

US Classification, Issued: 318139, 318368, 318376, 318432, 18065.4

File Segment: EngPI; EPI;

DWPI Class: T01; X13; X16; X21; X22; Q13; Q14

Manual Codes (EPI/S-X): T01-J07C; X13-F02; X16-G02; X16-K; X21-A01D; X21-A03C; X21-B01A1A; X21-B04; X22-P04

## B. Patent Files, Full-Text

File 349:PCT FULLTEXT 1979-2009/UB=20091015|UT=20091008

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File 348:EUROPEAN PATENTS 1978-200943

(c) 2009 European Patent Office

Set	Items	Description
S1	42119	(HYBRID OR ELECTRIC? OR BATTERY()POWER)(5N)(VEHICL? OR CAR OR CARS OR AUTO OR AUTOS OR AUTOMOBILE? OR TRUCK? OR SUV? OR -SEDDAN? OR VAN? OR PICKUP? OR COUPE? OR MINIVAN? OR LORRY OR L-ORRIES)
S2	858258	BATTERY OR BATTERIES OR CELL OR CELLS OR POWER()(SOURCE?? - OR SUPPLY OR SUPPLIES) OR (ENERGY OR ELECTRICAL)(2N)STORAGE
S3	3617	(CHARG? OR DISCHARG?)(5N)(HISTOR? OR RECORD OR RECORDS)
S4	97989	(UNIT OR UNITS)(5N)(CHARGE OR CHARGES OR ENERGY OR POWER)
S5	240446	(COST? OR PRICE? OR EXPENSE?)(10N)(GENERAT? OR PRODUC? OR - CREAT? OR MAKE? OR MAKING OR YIELD?)
S6	0	S1(S)S2(S)S3(S)S4(S)S5
S7	29	S2(S)S3(S)S4
S8	9	S7 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)
S9	10	S1(S)S2(S)S3

S10 8 S9 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)  
S11 24 S1(S)S2(S)S4(S)S5  
S12 7 S11 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)  
S13 17 S2(S)S3(S)S5  
S14 2 S13 AND IC=(B60R OR B60W OR H01M OR B60K OR B60L OR B60T OR H01M OR H02J)  
S15 25 S8 OR S10 OR S12 OR S14  
S16 20 S15 NOT AD=20040225:20091024/PR  
S17 20 IDPAT S16 (sorted in duplicate/non-duplicate order)  
S18 20 IDPAT S16 (primary/non-duplicate records only)

18/3,K/1 (Item 1 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2009 European Patent Office. All rts. reserv.  
02003973

Power control unit for a vehicle  
Leistungssteuerungseinheit fur ein Fahrzeug  
Unit de commande de puissance pour un vehicule  
PATENT ASSIGNEE:

TOYOTA JIDOSHA KABUSHIKI KAISHA, (7051690), 1, Toyota-cho,,  
Toyota-shi,Aichi-ken, 471-8571, (JP), (Applicant designated States:  
all)

INVENTOR:

Kusumi, Hidetoshi, c/o Toyota Jidosha Kabushiki Kaisha,1, Toyota-cho,  
Toyota-shi,Aichi-ken, 471-8571, (JP)  
Yagi, Katsunori, c/o Toyota Jidosha Kabushiki Kaisha,1, Toyota-cho,  
Toyota-shi,Aichi-ken, 471-8571, (JP)

LEGAL REPRESENTATIVE:

TBK-Patent (102381), Bavariaring 4-6, 80336 Munchen, (DE)  
PATENT (CC, No, Kind, Date): EP 1612086 A2 060104 (Basic)

EP 1612086 A3 090401

APPLICATION (CC, No, Date): EP 2005019341 020613;

PRIORITY (CC, No, Date): JP 2001182325 010615

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

RELATED PARENT NUMBER(S) - PN (AN):

EP 1266801 (EP 2002013076)

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:  
H02J-0007/08 A I F B 20060101 20090224 H EP  
H02M-0007/00 A I L B 20060101 20090224 H EP  
F02N-0011/08 A I L B 20060101 20090224 H EP  
B60L-0011/18 A I L B 20060101 20090224 H EP

ABSTRACT WORD COUNT: 118

NOTE:

Figure number on first page: 2

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200601	261

SPEC A (English) 200601 5861  
Total word count - document A 6123  
Total word count - document B 0  
Total word count - documents A + B 6123  
INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):  
IPC + Level Value Position Status Version Action Source Office:  
H02J-0007/08 A I F B 20060101 20090224 H EP...  
...B60L-0011/18 A I L B 20060101 20090224 H EP

...SPECIFICATION formed on the upper casing portion 110a.  
(9) The unit casing 110 is dimensioned so that the unit casing 110 can be mounted on the battery tray provided in a laterally end portion of the engine room of the vehicle. This arrangement is effective to minimize a required change of design of the engine room of the present vehicle having the two electric power sources, with respect to the engine room of a vehicle having a single electric power source.  
(10) The positive terminal 152 of the low-voltage DC power source 150 (having the nominal voltage of 12V) is fixed to the unit casing 110, so that when the engine of the present vehicle is started with a jumper cable connecting the positive terminal 152 to a 12V DC battery on another vehicle, the worker can find the positive terminal 152 without difficulty.  
(11) The outer coatings of the power wires in the nominal 12V power source system and those in the nominal 36V power source system are differently colored, for easy distinction between those power wires in the two systems, such that the ease of servicing of the power control unit 100 is improved. The outer coatings of the power wires 131a-131c, 130b, 130c and 133 used in the nominal 36V power source system have a bright yellow (or golden yellow) color to clearly identify to the worker that an exposure to the voltage of those power wires...

18/3,K/2 (Item 2 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2009 European Patent Office. All rts. reserv.  
01888325  
Control apparatus of electricity accumulation mechanism  
Steuergerat fur Elektrizitätsladungsmechanismus  
Dispositif de commande pour mechanisme d'accumulation d'electricite  
PATENT ASSIGNEE:  
Toyota Jidosha Kabushiki Kaisha, (203740), 1, Toyota-cho,, Toyota-shi, Aichi-ken, 471-8571, (JP), (Applicant designated States: all)  
INVENTOR:  
Suzuki, Yusuke, Toyota Jidosha Kabushiki Kaisha, Toyota-cho, Toyota-shiAichi-ken, 471-8571, (JP)  
LEGAL REPRESENTATIVE:  
TBK-Patent (102381), Bavariaring 4-6, 80336 Munchen, (DE)  
PATENT (CC, No, Kind, Date): EP 1526627 A2 050427 (Basic)  
EP 1526627 A3 070613  
APPLICATION (CC, No, Date): EP 2004024853 041019;  
PRIORITY (CC, No, Date): JP 2003359126 031020  
DESIGNATED STATES: AT; BE; BG; CH; CY; CZ; DE; DK; EE; ES; FI; FR; GB; GR; HU; IE; IT; LI; LU; MC; NL; PL; PT; RO; SE; SI; SK; TR  
EXTENDED DESIGNATED STATES: AL; HR; LT; LV; MK

INTERNATIONAL PATENT CLASS (V7): H02J-007/14

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

H02J-0007/14	A I F B	20060101	20050128	H EP
H02J-0007/00	A I L B	20060101	20070504	H EP
B60K-0006/04	A I L B	20060101	20070504	H EP
B60L-0011/18	A I L B	20060101	20070504	H EP

ABSTRACT WORD COUNT: 95

NOTE: Figure number on first page: 5

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200517	1037
SPEC A	(English)	200517	6965
Total word count - document A			8003
Total word count - document B			0
Total word count - documents A + B			8003

INTERNATIONAL PATENT CLASS (V7): H02J-007/14

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

H02J-0007/14	A I F B	20060101	20050128	H EP...
...H02J-0007/00	A I L B	20060101	20070504	H EP...
...B60K-0006/04	A I L B	20060101	20070504	H EP...
...B60L-0011/18	A I L B	20060101	20070504	H EP

...SPECIFICATION such deterioration is suppressed and the lifetime is increased.

Japanese Patent Laying-Open No. 7-255133 discloses a charging/discharging control apparatus for a secondary cell, which is capable of alleviating gradual increase in a deterioration rate of the capacitance and securing a long lifetime, even with a secondary cell having a prolonged history. The charging/discharging control apparatus disclosed in Japanese Patent Laying-Open No. 7-255133 is a charging/discharging control apparatus for a secondary cell. The charging/discharging control apparatus includes a discharge control unit stopping discharging if the voltage of the secondary cell becomes lower than a prescribed reference value when the secondary cell is discharged, a charge control unit stopping charging if the voltage of the secondary cell becomes higher than a prescribed reference value when the secondary cell is charged, and a history estimation unit estimating the history of the secondary cell based on the state of the secondary cell. The discharge control unit is configured to correct the reference value for stopping discharging to be raised in accordance with a history estimation value by the history estimation unit, while the charge control unit is configured to correct the reference value for stopping charging to be decreased in accordance with a history estimation value by the history estimation unit...

18/3,K/4 (Item 4 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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01585900

CONTROLLER FOR HYBRID CAR  
STEUERUNG FÜR HYBRIDFAHRZEUG  
CONTROLEUR POUR VOITURE HYBRIDE  
PATENT ASSIGNEE:

Honda Giken Kogyo Kabushiki Kaisha, (2060611), 1-1, Minami Aoyama 2-chome  
, Minato-ku, Tokyo 107-8556, (JP), (Applicant designated States: all)

INVENTOR:

WAKASHIRO, T., c/o K.K. Hon-da Gijutsu Kenkyusho, 4-1, Chuo 1-chome,  
Wako-shi, Saitama 351-0193, (JP)  
MATSUBARA, A., c/o K.K. Hon-da Gijutsu Kenkyusho, 4-1, Chuo 1-chome,  
Wako-shi, Saitama 351-0193, (JP)  
NAKAMOTO, Yasuo, c/o K.K. Hon-da Gijutsu Kenkyusho, 4-1, Chuo 1-chome,  
Wako-shi, Saitama 351-0193, (JP)  
SHIBUTANI, A., c/o K.K. Hon-da Gijutsu Kenkyusho, 4-1, Chuo 1-chome,  
Wako-shi, Saitama 351-0193, (JP)  
KAYANO, Morio, c/o K.K. Hon-da Gijutsu Kenkyusho, 4-1, Chuo 1-chome,  
Wako-shi, Saitama 351-0193, (JP)  
OZONO, Kazuya, c/o K.K. Hon-da Gijutsu Kenkyusho, 4-1, Chuo 1-chome,  
Wako-shi, Saitama 351-0193, (JP)

LEGAL REPRESENTATIVE:

Prechtel, Jorg, Dipl.-Phys. Dr. et al (47202), Weickmann & Weickmann  
Patentanwalte Postfach 86 08 20, 81635 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1428711 A1 040616 (Basic)  
WO 2003026912 030403

APPLICATION (CC, No, Date): EP 2002772858 020919; WO 2002JP9612 020919

PRIORITY (CC, No, Date): JP 2001289816 010921

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI  
INTERNATIONAL PATENT CLASS (V7): B60K-006/04; B60L-011/14

ABSTRACT WORD COUNT: 162

NOTE: Figure number on first page: 0014

LANGUAGE (Publication,Procedural,Application): English; English; Japanese

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200425	367
SPEC A	(English)	200425	18846
Total word count - document A			18833
Total word count - document B			0
Total word count - documents A + B			18833

INTERNATIONAL PATENT CLASS (V7): B60K-006/04...

...B60L-011/14

...SPECIFICATION measured charging current and discharging current which  
have been corrected using the charging efficiency and discharging  
efficiency.

In the case of the above-mentioned conventional hybrid  
vehicle, the above charging and discharging efficiency map or  
calculation equation used for measuring or calculating the state of  
charge of the battery is prepared based on the voltage  
characteristics of the battery, which has not been degraded, in a  
steady state. When the battery is degraded, or when memory effects  
or the like depending on the history of charging and  
discharging are present, because charging efficiency and  
discharging efficiency are degraded, the accumulated charging amount and  
accumulated discharging amount deviate from the true values, and the...

18/3,K/5 (Item 5 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2009 European Patent Office. All rts. reserv.  
01332644

METHOD AND APPARATUS FOR ADAPTIVE HYBRID VEHICLE CONTROL  
ADAPTIVES HYBRIDFAHRZEUG UND STEUERUNG  
PROCEDE ET APPAREIL DESTINE A LA COMMANDE DE VEHICULE HYBRIDE ET ADAPTATIF  
PATENT ASSIGNEE:

Azure Dynamics Inc., (3402790), 3650 Wesbrook Mall, Vancouver, British Columbia V6S 2L2, (CA), (Proprietor designated states: all)

INVENTOR:

DROZDZ, Piotr, 1159 The Castings, Vancouver, British Columbia V6H 3P6, (CA)  
ZETTEL, Andrew, 4986 Wycliffe Road, Vancouver, British Columbia V6T 1G1, (CA)

LEGAL REPRESENTATIVE:

Gritschneider, Martin et al (4511), Patentanwalte Abitz & Partner Postfach 86 01 09, 81628 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 1252036 A1 021030 (Basic)  
EP 1252036 B1 060315  
WO 2001054940 010802

APPLICATION (CC, No, Date): EP 2001902208 010130; WO 2001CA101 010130

PRIORITY (CC, No, Date): US 494812 000131

DESIGNATED STATES: AT; BE; CH; CY; DE; DK; ES; FI; FR; GB; GR; IE; IT; LI;  
LU; MC; NL; PT; SE; TR

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS (V7): B60L-015/20; B60L-011/12

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

B60L-0015/20 A I F B 20060101 20010806 H EP  
B60L-0011/12 A I L B 20060101 20010806 H EP

NOTE: No A-document published by EPO

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS B	(English)	200611	816
CLAIMS B	(German)	200611	639
CLAIMS B	(French)	200611	944
SPEC B	(English)	200611	6445

Total word count - document A 0  
Total word count - document B 8844  
Total word count - documents A + B 8844

INTERNATIONAL PATENT CLASS (V7): B60L-015/20...

...B60L-011/12

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

B60L-0015/20 A I F B 20060101 20010806 H EP...  
...B60L-0011/12 A I L B 20060101 20010806 H EP

...SPECIFICATION acceptable, the controller displays the warning on the user interface and decides if the operation is possible. Following the system check, the controller evaluates the battery state-of-charge in step 50 based on voltage and temperature data in correlation with the last shutdown record. If the battery state-of-charge (SOC) is below a prescribed level, the controller starts the Auxiliary Power Unit (APU) immediately to recharge the battery as shown in step 52. Conversely, if the battery state-of-charge is

above a prescribed level, the controller runs the vehicle in electric mode to lower the charge level as shown in step 54. If the battery state-of charge is within the prescribed operating limits, the controller waits until the accelerator pedal is depressed before activating the Auxiliary Power Unit. After system restart, the Auxiliary Power Unit is always activated at a most efficient operating point until the system collects sufficient amount of data to determine a more efficient configuration.

The above...

18/3,K/6 (Item 6 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2009 European Patent Office. All rts. reserv.

01265450

ELECTRIC DEVICE AND APPARATUS FOR CHARGING BATTERY UNIT, AND METHOD FOR CHARGING AND DISCHARGING

ELEKTRONISCHES GERÄT UND BATTERIEEINHEITSLADEVORRICHTUNG UND LADE-/ENTLADEVERFAHREN

DISPOSITIF ELECTRIQUE AVEC CHARGEUR DE BATTERIE ET PROCEDE DE CHARGE ET DECHARGE CORRESPONDANT

PATENT ASSIGNEE:

TOKYO R & D Co., Ltd., (1031495), 5F, No. 30 Kowa Building, 4-5, Roppongi 2-chome, Minato-ku, Tokyo 106-0032, (JP), (Proprietor designated states: all)

INVENTOR:

ISHII, Hiroshi, c/o Road Co., Ltd., 7F, T. C.-Lotus Build., 21-1, Akebono-cho 1-chome, Tachikawa-chi, Tokyo 190-0012, (JP)

AOKI, Takashi, c/o Road Co., Ltd., 7F, T. C.-Lotus Build., 21-1, Akebono-cho 1-chome, Tachikawa-shi, Tokyo 190-0012, (JP)

OHNUMA, Nobuhito, c/o Tokyo R&D Co. Ltd., Tokyo R & D Co., Ltd, 1516, Aiko, Atsugi-shi, Kanagawa 243-0035, (JP)

LEGAL REPRESENTATIVE:

Hofer, Dorothea et al (85703), Prüfer & Partner GbR Patentanwalte Sohnckestrasse 12, 81479 München, (DE)

PATENT (CC, No, Kind, Date): EP 1223653 A1 020717 (Basic)  
EP 1223653 B1 070307  
WO 2001011754 010215

APPLICATION (CC, No, Date): EP 2000948342 000731; WO 2000JP5141 000731

PRIORITY (CC, No, Date): JP 99220503 990803

DESIGNATED STATES (Pub A): AT; BE; CH; CY; DE; ES; FR; IT; LI; PT;  
(Pub B): DE; ES; FR; IT; PT

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS (V7): H02J-007/00; H02J-007/02;

B60L-011/18; H01M-010/42; H01M-010/44

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

H02J-007/00 A I F B 20060101 20010221 H EP

H02J-007/02 A I L B 20060101 20010221 H EP

B60L-0011/18 A I L B 20060101 20010221 H EP

H01M-010/42 A I L B 20060101 20010221 H EP

H01M-010/44 A I L B 20060101 20010221 H EP

ABSTRACT WORD COUNT: 135

NOTE: Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; Japanese

FULLTEXT AVAILABILITY:

Available Text Language Update Word Count

CLAIMS A	(English)	200229	1477
CLAIMS B	(English)	200710	932
CLAIMS B	(German)	200710	845
CLAIMS B	(French)	200710	1074
SPEC A	(English)	200229	14866
SPEC B	(English)	200710	13713
Total word count - document A		16347	
Total word count - document B		16564	
Total word count - documents A + B		32911	

INTERNATIONAL PATENT CLASS (V7): H02J-007/00...

...H02J-007/02...

...B60L-011/18...

...H01M-010/42...

...H01M-010/44

INTERNATIONAL CLASSIFICATION (V8 + ATTRIBUTES):

IPC + Level Value Position Status Version Action Source Office:

H02J-007/00 A I F B 20060101 20010221 H EP...

...H02J-007/02 A I L B 20060101 20010221 H EP...

...B60L-011/18 A I L B 20060101 20010221 H EP...

...H01M-010/42 A I L B 20060101 20010221 H EP...

...H01M-010/44 A I L B 20060101 20010221 H EP

...SPECIFICATION or discharge is performed from a battery unit having a less number of charge and discharge cycles to level the use rates of the battery units, or the like.

(4) Charge after refresh can be automatically performed when there is a possibility of occurrence of the memory effect, or refresh can be automatically performed only when...

...of repeating charge and discharge, and the like, to shorten the refresh period.

(5) Based on the charge information and the discharge information in the charge and discharge history information in the memories of the battery units, the charge and discharge orders are optimally decided to increase the probability of complete charge or complete discharge, and correction of the management of the remaining capacity of the battery is performed at a break of the charge and discharge action to improve the detection accuracy of the remaining capacity of the battery unit, which enables an appropriate operation of the electric device.

(6) It is possible to determine the battery life based on use history information such...manner.

(10) The batteries (storage battery packs) are paired for integration with the memories for storing the information such as the battery characteristics information, the charge and discharge history information, the correction data and the like to constitute units which are attachable/detachable to/from the electric device, which allows the battery units to be shared in the electric device having a plurality of battery units, so that charge of the batteries at a battery station or the like can be facilitated.

(11) In the case of using an electric motor, the battery section is divided into plural sections and...

18/3,K/7 (Item 7 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2009 European Patent Office. All rts. reserv.  
01106114

Secondary battery power storage system  
Stromspeichersystem fur Sekundarbatterien  
Système de stockage de puissance pour batteries secondaires  
PATENT ASSIGNEE:

Hitachi, Ltd., (204141), 6, Kanda Surugadai 4-chome, Chiyoda-ku, Tokyo  
101, (JP), (Applicant designated States: all)

INVENTOR:

Ikawa, Kyoko, 409, 8-12, Kokubu-cho 3-chome, Hitachi-shi, Ibaraki 316,  
(JP)

Horiba, Tatsuo, 4-3, Daihara-cho 3-chome, Hitachi-shi, Ibaraki 316, (JP)

LEGAL REPRESENTATIVE:

Altenburg, Udo, Dipl.-Phys. et al (1261), Patent- und Rechtsanwalte  
Bardehle - Pagenberg - Dost - Altenburg - Geissler - Isenbruck,  
Galileiplatz 1, 81679 München, (DE)

PATENT (CC, No, Kind, Date): EP 969580 A2 000105 (Basic)  
EP 969580 A3 000726

APPLICATION (CC, No, Date): EP 99114157 941221;

PRIORITY (CC, No, Date): JP 93331000 931227

DESIGNATED STATES: DE; FR; GB

RELATED PARENT NUMBER(S) - PN (AN):

EP 660489 (EP 94120263)

INTERNATIONAL PATENT CLASS (V7): H02J-007/10

ABSTRACT WORD COUNT: 150

NOTE: Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:

Available Text	Language	Update	Word Count
CLAIMS A	(English)	200001	451
SPEC A	(English)	200001	7704
Total word count - document A			8155
Total word count - document B			0
Total word count - documents A + B			8155

INTERNATIONAL PATENT CLASS (V7): H02J-007/10

...SPECIFICATION procedure for indicating the surplus electric power  
discharged capacity determined by the procedure defined by the arithmetic  
program.

Discharge current data, discharge voltage data and discharge  
temperature data on the discharge history, are measured by  
measuring means (sensors) when the secondary battery feeds electric  
power to the loads, and the measured data are transferred through an A/D  
converter to a computer provided with a memory and a controller. Charging  
current data, charge voltage data and charge temperature data on  
the charge history, are measured when the secondary  
battery is charged with electric power through the  
charge/discharge unit connected to the secondary  
battery in the night, and the measured data are transferred through  
the A/D converter to the computer. Surplus electric power discharge  
current data, surplus electric power discharge voltage data and surplus  
electric power discharge temperature on surplus electric power  
discharge history, are measured by sensors when the secondary  
battery discharges surplus electric power through the charge/discharge unit...

18/3,K/8 (Item 8 from file: 348)

DIALOG(R)File 348:EUROPEAN PATENTS

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01042545

Power source unit and electric vehicle loaded therewith

Stromquelleneinheit und elektrisches Fahrzeug damit

Source d'energie et vehicule electrique muni de celle-ci

PATENT ASSIGNEE:

TOKYO R & D CO. LTD., (1031490), 4-5, Roppongi 2-chome, Minato-ku, Tokyo 106, (JP), (Applicant designated States: all)

TOHOKU ELECTRIC POWER CO., INC., (340751), 7-1, Ichiban-cho 3-chome, Aoba-ku, Sendai-shi, Miyagi-ken 980, (JP), (Applicant designated States: all)

CHUBU ELECTRIC POWER COMPANY INC., (443441), No. 1 Higashishin-cho Higashi-ku, Nagoya-Shi Aichi-Ken, (JP), (Applicant designated States: all)

The Kansai Electric Power Co., Inc., (750194), 3-22, Nakanoshima-3-chome, Kita-ku, Osaka-shi, Osaka-fu, (JP), (Applicant designated States: all)

KYUSHU ELECTRIC POWER CO., INC., (843721), 1-82, Watanabedori 2-chome Chuo-ku, Fukuoka-shi, Fukuoka-ken, (JP), (Applicant designated States: all)

INVENTOR:

Takagi, Sakae, 11-5, Yakata 3-chome, Izumi-ku, Sendai-shi, Miyagi, (JP)

Mori, Hideki, 4-256, Nonami, Tenpaku-ku, Nagoya-shi, Aichi, (JP)

Hashidume, Shouzou, 21-5-202, Tomiokita 3-chome, Nara-shi, Nara, (JP)

Yamasaki, Kiyomi, 2-3, Koryodai 2-chome, Munakata, Fukuoka-shi, Fukuoka, (JP)

Ohnura, Nobuhito, 6-45, Kita-Tamachi, Mishima-shi, Shizuoka, (JP)

Kasuga, Nobuyuki, 17-15-704, Kasuga-cho 6-chome, Nerima-ku, Tokyo, (JP)

LEGAL REPRESENTATIVE:

Zinnecker, Armin, Dipl.-Ing. et al (151331), Lorenz-Seidler-Gosse, Widenmayerstrasse 23, 80538 Munchen, (DE)

PATENT (CC, No, Kind, Date): EP 923183 A2 990616 (Basic)

EP 923183 A3 000920

APPLICATION (CC, No, Date): EP 98120421 981028;

PRIORITY (CC, No, Date): JP 97323863 971110

DESIGNATED STATES: DE; FR; GB; IT

EXTENDED DESIGNATED STATES: AL; LT; LV; MK; RO; SI

INTERNATIONAL PATENT CLASS (V7): H02J-007/02; H02J-007/34

ABSTRACT WORD COUNT: 201

NOTE: Figure number on first page: 1

LANGUAGE (Publication,Procedural,Application): English; English; English

FULLTEXT AVAILABILITY:

Available Text Language Update Word Count

CLAIMS A (English) 9924 472

SPEC A (English) 9924 3055

Total word count - document A 3527

Total word count - document B 0

Total word count - documents A + B 3527

INTERNATIONAL PATENT CLASS (V7): H02J-007/02...

...H02J-007/34

...SPECIFICATION the current control circuit 53 when energy loss therein is significant.

As matter of course, it is possible to increase the overall efficiency

of the power source unit by means of a current control circuit of higher energy transfer efficiency, but such a circuit is expensive and raises the production cost of electric vehicles.

In the above mentioned examples, a cell is used as the main power source 51 in the power source unit, while a fuel cell or...

18/3,K/9 (Item 9 from file: 348)  
DIALOG(R)File 348:EUROPEAN PATENTS  
(c) 2009 European Patent Office. All rts. reserv.  
00691148  
Secondary battery power storage system  
Stromspeichersystem fur Sekundarbatterien  
Système de stockage de puissance pour batteries secondaires  
PATENT ASSIGNEE:  
HITACHI, LTD., (204144), 6, Kanda Surugadai 4-chome, Chiyoda-ku, Tokyo,  
(JP), (Proprietor designated states: all)  
INVENTOR:  
Ikawa, Kyoko, 409, 8-12, Kokubu-cho 3-chome, Hitachi-shi, Ibaraki 316,  
(JP)  
Horiba, Tatsuo, 4-3, Daihara-cho 3-chome, Hitachi-shi, Ibaraki 316, (JP)  
LEGAL REPRESENTATIVE:  
Altenburg, Udo, Dipl.-Phys. et al (1269), Patent- und Rechtsanwalte  
Bardehle . Pagenberg . Dost . Altenburg . Geissler . Isenbruck Postfach  
86 06 20, 81633 Munchen, (DE)  
PATENT (CC, No, Kind, Date): EP 660489 A2 950628 (Basic)  
EP 660489 A3 950830  
EP 660489 B1 000920  
APPLICATION (CC, No, Date): EP 94120263 941221;  
PRIORITY (CC, No, Date): JP 93331000 931227  
DESIGNATED STATES: DE; FR; GB  
RELATED DIVISIONAL NUMBER(S) - PN (AN):  
EP 969580 (EP 99114157)  
INTERNATIONAL PATENT CLASS (V7): H02J-007/34  
ABSTRACT WORD COUNT: 156  
NOTE: Figure number on first page: 1  
LANGUAGE (Publication,Procedural,Application): English; English; English  
FULLTEXT AVAILABILITY:  
Available Text Language Update Word Count  
CLAIMS B (English) 200038 433  
CLAIMS B (German) 200038 355  
CLAIMS B (French) 200038 490  
SPEC B (English) 200038 6143  
Total word count - document A 0  
Total word count - document B 7421  
Total word count - documents A + B 7421

INTERNATIONAL PATENT CLASS (V7): H02J-007/34

...SPECIFICATION procedure for indicating the surplus electric power discharged capacity determined by the procedure defined by the arithmetic program.

Discharge current data, discharge voltage data and discharge temperature data on the discharge history, are measured by measuring means (sensors) when the secondary battery feeds electric power to the loads, and the measured data are transferred through an A/D

converter to a computer provided with a memory and a controller. Charging current data, charge voltage data and charge temperature data on the charge history, are measured when the secondary battery is charged with electric power through the charge/discharge unit connected to the secondary battery in the night, and the measured data are transferred through the A/D converter to the computer. Surplus electric power discharge current data, surplus electric power discharge voltage data and surplus electric power discharge temperature on surplus electric power discharge history, are measured by sensors when the secondary battery discharges surplus electric power through the charge/discharge unit connected to the secondary battery, and the measured data are transferred through the A/D converter to the computer. The soundness of the battery can be known from those measured data. A discharged capacity discharged to the loads and a surplus electric power discharged capacity discharged to the charge/discharge unit can be known from the discharge current data and the surplus electric power discharge current, and the discharge operation of the secondary battery can be controlled so that the battery may not be discharged to a voltage below the final discharge voltage, i.e., so that the secondary battery may not be overdischarged, by using the discharge voltage data and the surplus electric power discharge voltage data. The charged capacity charged into the secondary battery can be known from the charge current data. The increase of the voltage of a lithium battery to its final charge voltage can be known from the charge voltage data and hence the overcharge of the lithium battery can be prevented. The final charge voltage of a nickel-cadmium battery... .

18/3,K/11 (Item 11 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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0094223 \*\*Image available\*\*

METHOD FOR UTILIZING THE ELECTRICAL OUTPUTS OF FUEL CELL POWERED VEHICLES  
SYSTEME ET PROCEDE PERMETTANT L'ACHAT ET LA VENTE EN TEMPS REEL  
D'ELECTRICITE GENEREE PAR DES VEHICULES ALIMENTES PAR FILE A  
COMBUSTIBLE

Patent Applicant/Assignee:

HYDROGENICS CORPORATION, 5985 McLaughlin Road, Mississauga, Ontario L5R  
1B8, CA, CA (Residence), CA (Nationality), (For all designated states  
except: US)

Patent Applicant/Inventor:

MCARTHUR Grant, 53 Boustead Avenue, Toronto, Ontario M6A 1Y7, CA, CA  
(Residence), CA (Nationality), (Designated only for: US)

HARDWICK Aaron, 2 Ormond Street South, Unit 2, Thorold, Ontario L2V 1Y1,  
CA, CA (Residence), CA (Nationality), (Designated only for: US)

Legal Representative:

BERESKIN & FARR (agent), 40 King Street West, 40th Floor, Toronto,  
Ontario M5H 3Y2, CA,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200274573 A2-A3 20020926 (WO 0274573)

Application: WO 2002CA316 20020307 (PCT/WO CA0200316)

Priority Application: US 2001808042 20010315

Parent Application/Grant:

Related by Continuation to: US 2001808042 20010315 (CON)

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ  
EC EE ES FI GB GD GE GH GM HR RU ID IL IN IS JP KE KG KP KR KZ LC LK LR  
LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI  
SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW  
(EP) AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE TR  
(OA) BF BJ CF CG CI CM GA GN GQ GW ML MR NE SN TD TG  
(AP) GH GM KE LS MW MZ SD SL SZ TZ UG ZM ZW  
(EA) AM AZ BY KG KZ MD RU TJ TM

Publication Language: English

Filing Language: English

Fulltext Word Count: 17993

Main International Patent Class (v7): B60L-011/18

Fulltext Availability:

Detailed Description

Claims

Detailed Description

... first embodiment, the present invention relates to a method for enabling the real time buying and selling of electrical power between at least one fuel cell power unit, which can be a stationary power unit or a power unit of a vehicle, and an energy service provider. The method comprises providing a docking station, which has connections to the fuel cell powered vehicle for the supply of a fuel and for transfer of electricity to the power grid. The method farther comprises determining the current cost of fuel and price paid for generating electricity. Based at least on the cost of fuel and price paid for generating electricity, the method farther comprises determining whether to make the fuel cell powered vehicle available for generation of electricity. In cases where the fuel is consumed by the vehicle and electricity generated by the vehicle, the method further comprises collecting data on the quantity of fuel consumed and amount of electricity generated, calculating the cost of the fuel and the value of the - 12 electricity generated, and providing a debit charge for the cost of fuel consumed and a credit charge for the value of electricity generated. This and other aspects of the invention envisage that the docking station... connections to at least one vehicle for the supply of a fuel and for transfer of electricity;  
(H) handing over control of the fuel cell power unit of each vehicle to an energy service provider;  
(iii) the energy service provider determining when to operate the fuel cell power unit of each vehicle and setting the load level for each fuel cell power unit; and  
(iv) when fuel is consumed by each vehicle and electricity generated by each vehicle, collecting data on the quantity of fuel consumed and amounts of electricity generated, and calculating the cost of the fuel and the value of the electricity generated....

18/3,K/12 (Item 12 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

(c) 2009 WIPO/Thomson. All rts. reserv.

00571659 \*\*Image available\*\*  
MICRO-FUEL CELL POWER DEVICES  
DISPOSITIFS D'ALIMENTATION A MICRO PILES A COMBUSTIBLES  
Patent Applicant/Assignee:

HOCKADAY Robert G,  
TURNER Patrick S,  
MASLOW Marvin,  
COOPER Martin,

Inventor(s):

HOCKADAY Robert G,  
TURNER Patrick S,  
MASLOW Marvin,  
COOPER Martin,

Patent and Priority Information (Country, Number, Date):

Patent: WO 200035032 A1 20000615 (WO 0035032)

Application: WO 99US29350 19991210 (PCT/WO US9929350)

Priority Application: US 98208745 19981210

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AE AL AM AT AU AZ BA BB BG BR BY CA CH CN CR CU CZ DE DK DM EE ES FI GB  
GD GE GH GM HR HI DU IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA  
MD MG MK MN MW MX NO NZ PL PT RO RU SD SE SG SI SK SL TJ TM TR TT TZ UA  
UG US UZ VN YU ZA ZW GH GM KE LS MW SD SL SZ TZ UG ZW AM AZ BY KG KZ MD  
RU TJ TM AT BE CH CY DE DK ES FI FR GB GR IE IT LU MC NL PT SE BF BJ CF  
CG CI CM GA GN GW ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 12956

Main International Patent Class (v7): H01M-002/00

International Patent Class (v7): H01M-008/10,...

..,H01M-002/08,..

...H01M-010/48

Fulltext Availability:  
Detailed Description

#### Detailed Description

... battery

is low, but the accuracy and dependability of these indicators often leave much room for improvement.

Determining the remaining energy capacity from a rechargeable battery typically uses the voltage output level as an indicator of charge but does not measure the capacity. Therefore, history of the discharge is used to assess the future of the remaining output. This electronic assessment of remaining energy capacity is complex, requires diagnostic electronics and is prone to errors. The liquid fueled fuel cell eliminates this uncertainty. Checking the fuel supply is as simple as looking at the liquid level in the fuel tank. The amount of fuel remaining compared to the total fuel tank capacity is the fraction of the total energy. Refueling also provides instant recovery. Components of these micro-fuel cells are inexpensive. Manufacturing and assembly cost are low. The production techniques allow the fuel-cells and

power supply systems to be manufactured at costs similar to rechargeable batteries. The production techniques enable the fuel cells to be produced in a roll-to-roll manufacturing method, similar to printing press processes, The production is envisioned as taking place in a vacuum...

18/3,K/16 (Item 16 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00364189 \*\*Image available\*\*

AUTOMATIC BATTERY MANAGEMENT SYSTEM

SYSTEME DE GESTION AUTOMATIQUE D'ACCUMULATEURS

Patent Applicant/Assignee:

PRECISION AUTOMATION SYSTEMS INC,

Inventor(s):

OSBORNE Robert E,

GARLOW David A,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9704514 A1 19970206

Application: WO 96US11905 19960718 (PCT/WO US9611905)

Priority Application: US 95505110 19950721

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AU CA JP KR AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 9309

Main International Patent Class (v7): H02J-007/00

Fulltext Availability:

Detailed Description

Detailed Description

... the charger station.

It is also desirable when a battery is charged to check the battery for water level in each cell.

In general,, the battery manufacturer specifies a particular water level for-each cell which will prevent overflow during charging and which will assure that the individual plates within the cell are fully covered by the water-acid liquid within the cell, During the charging operation,, if the battery cells are f illed to too high a level, the water will tend to boil out of the cell creating an acid spill on top of the battery and on the charger apparatus, It is common practice for the operator to check the water level in the battery by individually opening the caps on the cells and looking inside the battery to determine whether the water is at the proper height. As a matter of practice, it has been found that the cells which are f arthest from the operator position in a battery

fail first because those cells are not easily inspected without the operator bending over the battery and stretching in order to actually physically check the water in those cells. For example, a typical battery may be 36 inches in length requiring that the operator stretch at least that far from one end in order to check the water level in the extreme end cells of the battery. Furthermore, even though the operator may check the water level in the battery and periodically fill the cells, there is no method for determining whether any cell is overheating and therefore needs to be replaced by simply monitoring the water level in any particular cell. Furthermore, it is not believed that there has been any prior attempt to uniquely identify each battery used in such electric vehicles for the purpose of anticipating any failure of a battery from the battery's charging history....

18/3, K/17 (Item 17 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00360870 \*\*Image available\*\*

METHOD, APPARATUS, AND COMMUNICATION DEVICE FOR CHARGING A CHARGE STORAGE DEVICE WHICH IS MOMENTARILY CONNECTED TO A FIXED LOAD

PROCEDE, APPAREIL ET DISPOSITIF DE TELECOMMUNICATIONS SERVANT A CHARGER UN

DISPOSITIF DE STOCKAGE DE CHARGE MOMENTANEMENT CONNECTE A UNE CHARGE

FIXE

Patent Applicant/Assignee:

MOTOROLA INC,

Inventor(s):

EASTMOND Bruce Charles,

ALAMEH Rachid Mohsen,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9701195 A1 19970109

Application: WO 96US55742 19960426 (PCT/WO US9605742)

Priority Application: US 95492552 19950620

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AU CA CN AT BE CH DE DK ES FI FR GB GR IE IT LU MC NL PT SE

Publication Language: English

Fulltext Word Count: 3696

Main International Patent Class (v7): H01M-010/44

International Patent Class (v7): H01M-10:46

Fulltext Availability:

Detailed Description

Detailed Description

... maintain the battery fully charged by compensating for the on going self discharge and capacity deterioration with age.

Second, a load is connected to the battery. As a result, a counter starts to increment at a predetermined counting rate in order to maintain a discharge unit record of the drained

energy. When the load

is terminated (502), the counter output which is now non-zero, remains in this state (51 0) until a charging source voltage (508) is sensed. If the temperature of the battery (520) is below a given threshold indicating normal temperature, charging commences at a first predetermined charging rate (51 2), and the counter begins to decrement at a first predetermined decrementing rate (51 6). If the battery temperature is exceeds a set threshold indicating high battery temperature, charging commences at a second predetermined charging rate (522), and the counter decrements at a second predetermined decrementing rate (524). This continues until all...

18/3,K/20 (Item 20 from file: 349)

DIALOG(R)File 349:PCT FULLTEXT

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00312403

ROADWAY-POWERED ELECTRIC VEHICLE HAVING ON-BOARD ENERGY STORAGE MEANS AND INFORMATION MEANS

SYSTEME DE VEHICULE ELECTRIQUE ALIMENTE PAR LA CHAUSSEE DOTE D'UN DISPOSITIF DE STOCKAGE D'ENERGIE ET D'UN DISPOSITIF D'INFORMATIONS EMBARQUES

Patent Applicant/Assignee:

P H ROSS INDUSTRIES INC,  
ROSS Howard R,

Inventor(s):

ROSS Howard R,

Patent and Priority Information (Country, Number, Date):

Patent: WO 9530556 A2 19951116

Application: WO 95US5611 19950504 (PCT/WO US9505611)

Priority Application: US 94238826 19940505

Designated States:

(Protection type is "patent" unless otherwise stated - for applications prior to 2004)

AM AT AU BB BG BR BY CA CH CN CZ DE DK EE ES FI GB GE HU IS JP KE KG KP KR KZ LK LR LT LU LV MD MG MN MW NO NZ PL PT RO RU SD SE SG SI SK TJ TM TT UA UG US UZ VN KE MW SD SZ UG AT BE CH DE DK ES FR GB GR IE IT LU MC NL PT SE BF BJ CF CG CI CM GA GN ML MR NE SN TD TG

Publication Language: English

Fulltext Word Count: 22472

Main International Patent Class (v7): B60L-011/16

International Patent Class (v7): B60L-05:00

Fulltext Availability:

Detailed Description

Claims

Claim

... power transmitting module

24 over which a fleet of RPEV's 12 may travel. Each roadway power transmitting module 24 is connected to a utility power source over suitable power lines 78, as previously described,

As indicated above in Table 1, the roadway power transmitting modules 24 are typically about 3

meters...onboard coil 42 passes over the embedded coil 40, With reference to the RPEV system of the present embodiment, it is noted that a conventional battery-driven electric vehicle is normally charged overnight for several hours in one's garage, and then the vehicle starts off the day with a full charge on the batteries. The rate of charge is inherently constrained by limitations of power available in the typical household, since 200 KW, if installed, would be prohibitively expensive...

...difference, Demand responsive charging is, as previously explained, made possible by two technologies: (1) the non-contacting inductive coupling energy transfer system, and (2) an energy storage system that allows a very high rate of charge to take place, The combination of these two technologies and the associated onboard power control unit 32 make it possible to replenish the stored energy of an RPEV in minutes, not hours, At least four types of demand responsive charging...25 percent of its stops, Such charging transfers enough energy for the bus to run continuously for 24 hours a day, if necessary, since the energy storage system is being constantly replenished. This means that for a bus system less than 1 percent of the route would need to be electrified, contrasted...

## **IV. Text Search Results from Dialog**

### **A. NPL Files, Abstract**

File 583:Gale Group Globalbase(TM) 1986-2002/Dec 13  
(c) 2002 Gale/Cengage  
File 474:New York Times Abs 1969-2009/Oct 23  
(c) 2009 The New York Times  
File 475:Wall Street Journal Abs 1973-2009/Oct 23  
(c) 2009 The New York Times  
File 35:Dissertation Abs Online 1861-2009/Sep  
(c) 2009 ProQuest InfoLearning  
File 65:Inside Conferences 1993-2009/Oct 23  
(c) 2009 BLDS all rts. reserv.  
File 99:Wilson Appl. Sci & Tech Abs 1983-2009/Sep  
(c) 2009 The HW Wilson Co.  
File 256:TecTrends 1982-2009/Oct W2  
(c) 2009 Info.Sources Inc. All rights res.  
File 2:INSPEC 1898-2009/Oct W3  
(c) 2009 The IET  
File 81:MIRA - Motor Industry Research 2001-2009/Aug  
(c) 2009 MIRA Ltd.  
File 63:Transport Res(TRIS) 1970-2009/Sep  
(c) fmt only 2009 Dialog

Set	Items	Description
S1	52498	(HYBRID OR ELECTRIC? OR BATTERY()POWER)(5N) (VEHICL? OR CAR OR CARS OR AUTO OR AUTOS OR AUTOMOBILE? OR TRUCK? OR SUV? OR - SEDAN? OR VAN? OR PICKUP? OR COUPE? OR MINIVAN? OR LORRY OR L- ORRIES)
S2	944557	BATTERY OR BATTERIES OR CELL OR CELLS OR POWER()(SOURCE?? - OR SUPPLY OR SUPPLIES) OR (ENERGY OR ELECTRICAL)(2N)STORAGE
S3	3083	(CHARG? OR DISCHARG?)(5N) (HISTOR? OR RECORD OR RECORDS)
S4	44784	(UNIT OR UNITS)(5N) (CHARGE OR CHARGES OR ENERGY OR POWER)
S5	260632	(COST? OR PRICE? OR EXPENSE?)(10N) (GENERAT? OR PRODUC? OR - CREAT? OR MAKE? OR MAKING OR YIELD?)
S6	0	S1 AND S2 AND S3 AND S4 AND S5
S7	3	S2 AND S3 AND S4
S8	267	S2 AND S4 AND S5
S9	20	S8 AND S1
S10	0	S2 AND S3 AND S5
S11	14	S1 AND S2 AND S3
S12	37	S7 OR S9 OR S11
S13	22	S12 NOT (PY>2004 OR PD>20040224)
S14	22	RD (unique items)

14/5/1 (Item 1 from file: 583)  
DIALOG(R)File 583:Gale Group Globalbase(TM)  
(c) 2002 Gale/Cengage. All rts. reserv.  
09515501  
EVI/SRE join forces  
UK: SRE AND EVI TO JOINTLY DEVELOP DMFC UNITS

Prototype direct methanol fuel cell (DMFC) units will be jointly developed by SRE Controls and Energy Ventures (EVI) by June 2002. EVI's proprietary DMFC technology is expected to facilitate the lowest cost per unit of all available energy systems. SRE makes and develops industrial electric vehicle controls, with EVI expected to initially target this market. It is expected that a DMFC will be brought to market more quickly via the joint effort.

COMPANY: SRE CONTROLS; ENERGY VENTURES  
PRODUCT: Organic Chemicals (2860); Fuel Cells (3629FC);  
EVENT: Product Design & Development (33); Company Formation (14);  
COUNTRY: United Kingdom (4UK);

14/5/2 (Item 2 from file: 583)  
DIALOG(R)File 583:Gale Group Globalbase(TM)  
(c) 2002 Gale/Cengage. All rts. reserv.  
06402696

Electric cars enjoy new surge of interest  
JAPAN: AUTOMAKERS FORM BATTERY VENTURES  
The Nikkei Weekly (NW) 02 Dec 1996 P.10  
Language: ENGLISH

In Japan, car automakers are teaming up with battery makers, in an effort to develop batteries that can pack more energy and enable electric cars to travel a longer distance. In September 1996, Toyota Motor Corp teamed up with Matsushita Electric Industrial Co to hasten the commercialisation of the nickel-metal hydride battery for electric cars. Such batteries can store about twice as much energy per unit of weight as lead-acid batteries. Nissan Motor Co has also joined venture with Sony Corp to develop lithiumion batteries (those commonly used in laptops, camcorders and cellular phones). These batteries are even more sophisticated than nickel-metal hydride batteries because of their greater capacities and shorter recharging times. Meanwhile, General Motors Corp co-operated with US-based Ovonic Battery Co to focus on nickel-metal hydride technology. Though the automakers are focusing on battery improvements to boost the popularity of electric cars, the market prospect for their environment-friendly creations are far from rosy. The makers are still faced with the obstacles of high production cost and low order volume. So far, Toyota's RAV4L EV launched in September 1996, had received only six orders. A more serious problem would be the obvious lack of roadside recharging facilities in Japan that hinders the growth of such electric vehicles.

COMPANY: OVONIC BATTERY; GENERAL MOTORS; NISSAN MOTOR; MATSUSHITA ELECTRIC INDUSTRIAL; TOYOTA MOTO  
PRODUCT: Cars (3711CA); Motor Vehicles & Parts (3710); Batteries (3690BA);  
EVENT: Companies Activities (10); Company Formation (14);  
COUNTRY: Japan (9JPN);

14/5/4 (Item 1 from file: 99)  
DIALOG(R)File 99:Wilson Appl. Sci & Tech Abs  
(c) 2009 The HW Wilson Co. All rts. reserv.  
1144997 H.W. WILSON RECORD NUMBER: BAST94013551  
Care and feeding of motive power batteries  
Ohnstrup, Frederick F;  
Plant Engineering v. 48 supp (Jan. '94) p. 6+  
DOCUMENT TYPE: Feature Article ISSN: 0032-082X LANGUAGE: English  
RECORD STATUS: New record

**ABSTRACT:** Under normal operating conditions, batteries that are used in mobile industrial equipment can be expected to provide dependable service for 1,800 to 2,000 workshifts or charge/discharge cycles. This life can be extended if the batteries receive proper care and maintenance or can be shortened if the batteries are neglected. In addition to a description of the construction and operation of a battery, guidance is offered on how to obtain optimum performance and maximum battery life by bearing in mind daily charging and discharging practices, weekly equalizing charge, other routine maintenance procedures, and record-keeping.

**DESCRIPTORS:** Electric industrial trucks; Lead acid batteries--Charging; Lead acid batteries--Maintenance and repair;

14/5/5 (Item 1 from file: 2)  
DIALOG(R)File 2:INSPEC  
(c) 2009 The IET. All rts. reserv.  
08750086  
Title: A fully digital smart and fast lead-acid battery charge system  
Authors(s): Alvarez, J.; Marcos, J.; Lago, A.; Nogueiras, A.A.; Doval, J.;  
Penalver, C.M.  
Author Affiliation: ETSI Telecomunicacion, Vigo University, Spain  
Book Title: 2003 IEEE 34th Annual Power Electronics Specialists  
Conference. Conference Proceedings (Cat. No.03CH37427)  
Inclusive Page Numbers: 913-17 vol.2  
Publisher: IEEE, Piscataway, NJ  
Country of Publication: USA  
Publication Date: 2003  
Conference Title: PESC 2003 - Power Electronics Specialist Conference  
Conference Date: 15-19 June 2003  
Conference Location: Acapulco, Mexico  
ISBN: 0 7803 7754 0  
U.S. Copyright Clearance Center Code: 0-7803-7754-0/03/\$17.00  
Medium: Also available on CD-ROM in PDF format  
Part: vol.2  
Number of Pages: 4 vol.xxiv+2020  
Language: English  
Document Type: Conference Paper (PA)  
Treatment: Practical (P); Experimental (X)  
Abstract: This paper presents the implementation of a fully digital smart charging system for traction lead-acid batteries for electric vehicles (EV). The charger uses a fast charge strategy, through the combination of constant high current charge periods with pulsant current charge periods. This charge system takes into account the actual battery charge state as well as the battery record, referred to previous charges and

discharges. To obtain this smart charging system, it is necessary to develop a fast battery charge control system, a power source and a battery data acquisition system to periodically store the most important battery parameters during the discharge process. The fast charging of electric vehicle batteries promises a technically feasible approach to increase customer acceptability of electric vehicles (EV), and its main objective includes short recharge times, high charge efficiencies and improved battery cycle life. The aim of the present work is the development of a smart charging strategy integrated with a digital data acquisition system implemented with a XC40010E FPGA from Xilinx (14 refs.)

Subfile(s): B (Electrical & Electronic Engineering)

Descriptors: battery chargers; battery management systems; battery powered vehicles; data acquisition; digital instrumentation; field programmable gate arrays; lead acid batteries; traction

Identifiers: Pb-acid battery; digital smart battery charger; lead-acid battery charge system; electric vehicles; fast charge strategy; constant high current charge periods; pulsant current charge periods; battery charge state; battery record; smart charging system; power source; battery data acquisition system; customer acceptability; short recharge times; high charge efficiencies; battery cycle life; XC40010E FPGA; Xilinx; digital data acquisition system; traction batteries; Pb

Classification Codes: B8410E (Secondary cells); B8520 (Transportation); B8360 (Power convertors and power supplies to apparatus); B7210G (Data acquisition systems); B1265B (Logic circuits)

Chemical Indexing:

Pb/int - Pb/el

INSPEC Update Issue: 2003-039

Copyright: 2003, IEE

14/5/7 (Item 3 from file: 2)

DIALOG(R)File 2:INSPEC

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06977868

Title: Design concept and characteristics of a power supply for optical network units in FTTH systems

Authors(s): Muroyama, S.; Yamasaki, M.; Takeno, K.; Kato, N.; Yamada, I.

Author Affiliation: NTT Power & Building Facilities, Musashino, Japan

Journal: IEICE Transactions on Communications, vol.E81-B, no.5, pp.1087-94

Publisher: Inst. Electron. Inf. & Commun. Eng

Country of Publication: Japan

Publication Date: May 1998

ISSN: 0916-8516

SICI: 0916-8516(199805)E81B:5L.1087:DCCP;1-P

CODEN: ITCMEZ

Language: English

Document Type: Journal Paper (JP)

Treatment: Practical (P); Experimental (X)

Abstract: This paper describes the design concept and characteristics of a power supply for optical network units in

fiber-to-the-home (FTTH) systems. The powering architectures of local powering, network powering and power hub powering are compared in terms

of cost and maintainability. A local powering architecture is selected for an ONU power supply because it is the most cost-effective overall compared with the others. The local power supply is mainly composed of a rectifier, DC-DC converters, a ringer, and batteries. A battery deterioration test function is important for the local power supply because battery lifetime varies depending on ambient temperature, discharge history, and charging conditions, and it is shorter than other electrical components used in ONU. Supplying power using alternative batteries is also necessary because the capacity of batteries installed in the power supply is limited.

These functions and electrical characteristics are checked using an experimental power supply with Ni-Cd batteries (9refs.)

Subfile(s): B (Electrical & Electronic Engineering); E (Mechanical & Production Engineering)

Descriptors: DC-DC power converters; maintenance engineering; optical communication equipment; optical fibre subscriber loops; rectifying circuits; secondary cells; telecommunication power supplies

Identifiers: power supply; optical network units; FTTH systems; fiber-to-the-home systems; local powering; network powering; power hub powering; powering architectures; cost; maintainability; rectifier; DC-DC converters; ringer; battery deterioration test function; Ni-Cd batteries; Ni-Cd

Classification Codes: B6220B (Subscriber loops); B8360 (Power converters and power supplies to apparatus); B6260 (Optical communication); E1020 (Maintenance and reliability)

Chemical Indexing:

Ni-Cd/int - Cd/int - Ni/int - Cd/el - Ni/el

INSPEC Update Issue: 1998-029

Copyright: 1998, IEE

14/5/8 (Item 4 from file: 2)

DIALOG(R)File 2:INSPEC

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06966500

Title: Impact of wide-scale EV charging on the power supply network

Author(s): Heider, A.; Haubrich, H.-J.

Author Affiliation: Res. & Dev. Center, BMW AG, Munich, Germany

Inclusive Page Numbers: 6/1-4

Publisher: IEE, London

Country of Publication: UK

Publication Date: 1998

Conference Title: IEE Colloquium on Electric Vehicles - A Technology Roadmap for the Future (Digest No.1998/262)

Conference Date: 5 May 1998

Conference Location: London, UK

Conference Sponsor: IEE

Number of Pages: 52

Language: English

Document Type: Conference Paper (PA)

Treatment: Practical (P)

Abstract: The electric vehicle (EV) effects neither local tailpipe nor remarkable noise emissions. However, questions of global ecological consequences of wide-scale EV battery charging still have not thoroughly been answered. They are decisively influenced by the

implementation of a charging infrastructure and the applied charging strategy. Besides, structure and operation of the public power supply system-e.g. its generation units using different primary energy and causing different costs-are significant for assessment. This paper represents some results of a comprehensive investigation in order to fill this gap by evaluating different battery charging strategies and their effects on the power supply system (1 refs.)

Subfile(s): B (Electrical & Electronic Engineering)

Descriptors: battery chargers; electric vehicles; load (electric); power consumption; power systems; secondary cells

Identifiers: electric vehicle; battery charging; power supply network; global ecological consequences;

wide-scale implementation; charging infrastructure; charging strategy

Classification Codes: B8520 (Transportation); B8410E (Secondary cells); B8360 (Power convertors and power supplies to apparatus); B8110 (Power systems)

INSPEC Update Issue: 1998-027

Copyright: 1998, IEE

14/5/10 (Item 6 from file: 2)

DIALOG(R)File 2:INSPEC

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05923638

Title: Adaptive control of the unique mobility EV drive system to account for time-varying battery parameters

Authors(s): Kopf, C.

Author Affiliation: Unique Mobility, Golden, CO, USA

Book Title: Proceedings of the Tenth Annual Battery Conference on Applications and Advances (Cat. No.95TH8035)

Inclusive Page Numbers: 159-65

Publisher: IEEE, New York, NY

Country of Publication: USA

Publication Date: 1995

Conference Title: Proceedings of the Tenth Annual Battery Conference on Applications and Advances

Conference Date: 10-13 Jan. 1995

Conference Location: Long Beach, CA, USA

Conference Sponsor: AIAA Electrochem. Soc. City of Los Angeles, Dept.

Water & Power Southern California Edison Co

ISBN: 0 7803 2459 5

U.S. Copyright Clearance Center Code: 0 7803 2459 5/95/\$4.00

Item Identifier (DOI): <http://dx.doi.org/10.1109/BCAA.1995.398545>

Number of Pages: ix+324

Language: English

Document Type: Conference Paper (PA)

Treatment: Application (A); Practical (P)

Abstract: Unique Mobility developed an electric vehicle drive system which is being used in the BMW El. This system is comprised of a permanent magnet brushless DC motor, amplifier, and microprocessor controller. The system is capable of high torque (150 Nm) at low speeds (<2000 r.p.m.) and constant power (32 kW) at higher speeds (to 8000 r.p.m.). The design of the system utilizes a 6 step drive in combination with microprocessor control. The topology of the drive was designed to

maximize overall system efficiency. The control system was designed to operate smoothly while transitioning between different regions of operation. The controller must also regulate the torque to stay within all of the safety limits, two of which are undervoltage and overvoltage. The undervoltage limit is used to prevent fully discharging the batteries to prolong their life, and the overvoltage limit is necessary to protect the power devices in the amplifier and/or prevent outgassing of the battery. The maximum voltage from the motor in regeneration is a function of the regenerated current, the internal battery impedance in regeneration, and the open circuit bus voltage. The open circuit bus voltage and the internal battery impedance in regeneration varies with each different battery technology, and the batteries' short and long term charge/discharge history. The described drive system adapts to any battery technology by limiting the user to only the maximum instantaneous power that the battery can provide (in motoring) or accept (in regeneration) (1 refs.)

Subfile(s): B (Electrical & Electronic Engineering); C (Computing & Control Engineering)

Descriptors: adaptive control; brushless DC motors; control system synthesis; DC motor drives; digital control; electric propulsion; electric vehicles; machine control; microcomputer applications; permanent magnet motors; power amplifiers; secondary cells; stepping motors; time-varying systems; torque control; voltage control

Identifiers: electric vehicle drive; permanent magnet brushless DC motor; amplifier; microprocessor controller; design; six step drive; efficiency; torque regulation; control system; safety limits; undervoltage; overvoltage; batteries; outgassing; regeneration; internal battery impedance; open circuit bus voltage; charge /discharge history; time-varying battery parameters; adaptive control

Classification Codes: B8520 (Transportation); B8510 (Drives); B8320 (d.c. machines); B8410E (Secondary cells); B1220 (Amplifiers); C7410B (Power engineering computing); C3360B (Road-traffic system control); C1340G (Time-varying control systems); C1340E (Self-adjusting control systems); C3110B (Voltage control); C3340H (Control of electric power systems); C3120F (Mechanical variables control); C1310 (Control system analysis and synthesis methods); C7420 (Control engineering computing)

INSPEC Update Issue: 1995-014

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14/5/14 (Item 10 from file: 2)

DIALOG(R)File 2:INSPEC

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03259557

Title: The design and development of a battery ampere-hour meter for spacecraft applications

Authors(s): Chung, A.S.; Mazzocco, C.F.

Author Affiliation: General Electric Co., Philadelphia, PA, USA

Inclusive Page Numbers: 1174-9 vol.3

Publisher: AIChE, New York, NY

Country of Publication: USA

Publication Date: 1983

Conference Title: Proceedings of the 18th Intersociety Energy Conversion

Engineering Conference  
Conference Date: 21-26 Aug. 1983  
Conference Location: Orlando, FL, USA  
Conference Sponsor: IEEE AIChE ANS SAE ACS AIAA ASME  
ISBN: 0 8169 0253 4  
Number of Pages: 5 vol. 2441  
Language: English  
Document Type: Conference Paper (PA)  
Treatment: Practical (P)  
Abstract: The ampere-hour management of space batteries has been a continuing problem due mainly to such factors as variable demand profiles, cell temperatures, cycle history, and charging strategies. As a result, direct relationships between integrated ampere-hour demands and actual battery state-of-charge have been blurred. An ampere-hour measurement technique is described which attempts to ease such limitations by permitting the periodic adjustment of relative charge and discharge parameters as indicated by empirical test data. In addition, when the state-of-charge falls below a present threshold, an automatic survival mode or load shed is initiated to preserve the remaining power for essential mission functions.  
Hardware implementation is described for a spacecraft application (0 refs.)  
Subfile(s): B (Electrical & Electronic Engineering)  
Descriptors: ammeters; cells (electric); power measurement; space vehicles  
Identifiers: power measurement; battery ampere-hour meter; spacecraft; variable demand profiles; cell temperatures; cycle history; charging; automatic survival mode; load shed  
Classification Codes: B7310D (Current measurement); B7630B (Aerospace and avionic power supplies); B8150 (Power system measurement and metering)  
INSPEC Update Issue: 1984-007  
Copyright: 1984, IEE

14/5/17 (Item 1 from file: 81)  
DIALOG(R)File 81:MIRA - Motor Industry Research  
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150088  
Gas price woes? Look for these fuel-efficient technologies on future vehicles  
Delphi automotive systems - Press Release  
June 27, 2000

Document Type: PRESS RELEASE Language: ENGLISH  
Record Type: ABSTRACT  
Supplier Record Type: Press Release

Long before prices at the gas pump began to skyrocket, Delphi Automotive Systems was developing and implementing a complete portfolio of vehicle systems that help increase fuel efficiency without harming the environment. According to Don Runkle, Delphi Automotive Systems executive vice president, rising fuel costs around the world combined with growing concern about vehicle emissions is driving growing consumer demand for clean, efficient engine technology that doesn't sacrifice performance or fuel economy, and Delphi has an extensive portfolio of engine, thermal and energy management systems to help address consumer's needs. These products include a combination of technologies available today, and technologies that are under development and will be available in the near future.

Highlights include the ESTEER(tm). Electric Power Steering is an all-electric, engine independent steering system. The system is powered by an electric motor instead of a traditional hydraulic pump. This means no pump, hoses, hydraulic fluid, drive belt or pulley on the engine, making ESTEER a more efficient and environmentally friendly system. Consumers benefit from Delphi's electric power steering system with increased fuel economy of up to 5% on selected vehicles, improved acceleration, and added safety with power steering even should the engine stall. Stop-Start Generator (under development) - Delphi has developed a small-vehicle generator that has a stop-start feature for increased fuel economy, lower emissions and reduced noise in city driving. Called the Stop-Start Generator, the unit helps deliver lower fuel consumption and emissions by shutting off the engine when the vehicle idles - such as at a stoplight - and then quickly and quietly starting the engine via the accessory belt when the driver is ready to proceed. Energen(tm) Energy Management Systems (under development) - Delphi has developed Energen(tm) systems, which help offer improved fuel economy and reduced emissions while significantly increasing electrical power for the growing number of advanced electrical and electronic systems of 21st century vehicles. Energen is a family of hybrid and electric vehicle propulsion systems that increase the use of electric motors, power electronics and energy storage devices for cleaner, more efficient vehicle performance.

Advanced Thermal Management System (under development) - Delphi's Advanced Thermal Management Systems (ATMS) are vehicle air-conditioning, heating and powertrain heat management systems that help improve energy efficiency and fuel economy, greatly enhance occupant comfort and address environmental impact. Advanced Engine Management Systems - Delphi has products available today and in the near future that make the engine operate more efficiently by more precisely managing air, fuel and spark delivery. Delphi can quickly and cost-effectively develop custom-tailored systems for automakers to meet virtually any market requirement with the most fuel-efficient, cleanest operating solutions possible. These products include: Gasoline Direct-Injection System (available now) - Delphi's gasoline direct-injection system injects fuel directly into the cylinder, not the intake manifold, to offer significant fuel economy benefits. The injectors are capable of delivering a wide range of air/fuel ratios that can be optimised for any driving condition or emissions requirement. Delphi is prepared to adapt the direct-injection technology to all types of gasoline. Mechanical Variable Valve Train (under development) - Delphi's mechanical variable valve train has the ability to change intake valve lift, duration and phasing, this allows more accurate control of air and fuel delivery to correspond with varying engine demands. This technology provides an improvement in fuel economy similar to that realized with gasoline direct injection. It also allows for increased torque up to 5%. Diesel Common Rail Direct-Injection System (available now) - Delphi has developed a common rail direct injection system with ion-sensing for closed-loop control of diesel engine combustion. This technology is considered to be a major building block to bring the benefits of diesel engines to a wider base of consumers. These benefits include significant improvements in fuel economy, torque, noise and emissions. The technology delivers the following benefits: Fuel economy improvements between 2 and 3% when compared with today's already fuel-efficient diesel power plants; Exhaust particulate reduction between 10 and 20%; NOx emission reduction between 15 and 25%; Increases in torque performance between 3 and 4%; Dramatic improvement in pilot-injection accuracy, which diminishes diesel 'knock' by 3 to 5 decibels; and, Enabling closed-loop control at a cost that is equivalent to production systems found in the marketplace today

because no engine modifications are required. Cylinder Deactivation Systems (under development) - Delphi's cylinder deactivation systems utilize a loss motion device to control the actuation of individual cylinders. This provides fuel economy improvements of 5 to 8% over the current fuel-injection gasoline systems, depending on the driving conditions. The system maintains driveability and meets emissions standards through electro-hydraulic control and torque-based engine controls. Fuel Cell Auxiliary Power System (under development) - Delphi is working with European automakers BMW and Renault to co-develop a solid-oxide fuel cell system as an auxiliary power unit for passenger cars and light- and heavy-duty trucks. The system, being developed to use both gasoline and diesel fuel, will permit the automakers to increase the total generation of electrical energy in their vehicles. It will be able to power: Existing electrical features, such as lights, window controls and fuel pumps; Sub-systems that are currently mechanically driven, such as air-conditioning and water pumps, and; New electrical features, such as electric power steering, electric brakes, and the extensive range of communication, navigation and electronic equipment currently being introduced or planned. In addition to Delphi's effort to improve fuel efficiency, it's also an established leader in a variety of environmentally friendly initiatives. Delphi has created 'Design for Recyclability' and 'Design for Disassembly' programs to ensure development of products that meet environmental needs of customers worldwide. These programs have earned Delphi industry recognition such as the prestigious 1999 'Recycler of the Year' award from the Society of Plastics Engineers.

Descriptors : COMPONENTS INDUSTRY; DELPHI AUTOMOTIVE SYSTEMS; ELECTRIC STEERING SYSTEMS; ELECTRICAL/ELECTRONIC COMPONENTS; EMISSIONS; ENGINE MANAGEMENT SYSTEMS; EXHAUST PARTICULATES; FUEL CELLS; FUEL CONSUMPTION; FUEL ECONOMY; HVAC SYSTEMS; PRODUCT DEVELOPMENT; RESEARCH AND DEVELOPMENT

Section Name : General News

Subject Heading: DELPHI AUTOMOTIVE SYSTEMS

14/5/18 (Item 2 from file: 81)  
DIALOG(R)File 81:MIRA - Motor Industry Research  
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143229

Mitsubishi EV sets new world record  
Japan Automotive News

January 1, 2000

Page : 1

Supplementary Info: Vol. XXXVIII No.491

Collation : (2 p)

Document Type: JOURNAL Language: ENGLISH

Record Type: ABSTRACT

Supplier Record Type: ABN

A Mitsubishi prototype electric vehicle equipped with lithium-ion batteries has broken a world record previously held by GM, covering over 2,000km in 24 hours. The Mitsubishi FTO-EV was equipped with manganese lithium-ion batteries jointly developed by Japan Storage Battery Co and Mitsubishi Chemical. The batteries offer a 65% reduction in charging time combined with a 10% greater range than conventional nickel-hydride batteries, giving the vehicle a cruising

range of 150km per charge. The previous record was created by a Saturn EV prototype, which covered 1,700km in 24 hours in 1996. (JN)

Descriptors : BATTERIES; ELECTRIC VEHICLES; JAPAN;  
MITSUBISHI MOTORS; RESEARCH AND DEVELOPMENT  
Section Name : General News  
Subject Heading: MITSUBISHI MOTORS

14/5/19 (Item 3 from file: 81)  
DIALOG(R)File 81:MIRA - Motor Industry Research  
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114762  
Electrode cuts weight, cost of vehicle batteries  
NIKKEI WEEKLY  
February 23, 1998  
Page : 13  
Collation : (1 p)

Document Type: JOURNAL Language: ENGLISH

Record Type: ABSTRACT

Supplier Record Type: ABN

Panasonic EV Energy Co's monopoly over the battery market for electric vehicles is being threatened by the development of a new battery-electrode material by venture company Materials & Energy Research Institute Tokyo Ltd. The company aims to supply products to automakers within the next two years. Nickel-hydrogen batteries are the power source of choice for electric and hybrid gasoline-electric vehicles because they carry a relatively large charge per unit volume. The life of the battery is determined by the charge capacity of the hydrogen-absorbing alloy used for the electrodes, and this material is typically a rare-earth-type of alloy. But the institute has developed a zirconium-titanium alloy that boasts 40% greater charge capacity. Zirconium-titanium alloys are known to have high charge capacity, but because the material readily oxidizes and has poor durability, it has not been used to date for batteries. The institute solved the problem by using a fluoridating process to coat the alloy and prevent oxidation. It said it has already made prototype batteries in cooperation with a battery maker, and that its own tests show the battery has 40% greater charge capacity. The new battery is also around 30% lighter than conventional batteries of equal performance, and should cost less to make, since 25% less alloy is used. (AG)

Descriptors : BATTERIES; ELECTRIC VEHICLES; PANASONIC  
EV ENERGY CO; RESEARCH & DEVELOPMENT  
Section Name : General News  
Subject Heading: BATTERIES

14/5/20 (Item 4 from file: 81)  
DIALOG(R)File 81:MIRA - Motor Industry Research  
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97527  
Policy Implications of Hybrid-Electric Vehicles  
REUYL JS; SCHUURMANS PJ

Corporate Source: NEVCOR, Inc  
Final Report to NREL under Subcontract ACB 5 15337 01  
July 1, 1996  
Page : 1  
Collation : (56 p, 39 fig, 21 ref)  
Document Type: JOURNAL  
Record Type: ABSTRACT  
Supplier Record Type: AA

Properly-designed hybrid-electric vehicles (HEVs) using today's production vehicle platforms could offer the consumer, in the near-term, an affordable and appealing alternative to conventional ICE-powered (internal combustion engine) vehicle. At the same time, these vehicles could achieve the national priorities of reduced fuel use and reduced emissions.

Based upon the study results, half of all personal autos on the road in the US on a typical day travel less than 20 miles. These vehicles represent less than 20% of the total miles driven, but, due to cold engines and cold catalytic converters, these short trips produce more than 40% of all the emissions.

An HEV with a low-cost, light-weight battery pack and a small engine-powered auxiliary power unit (APU) could plug in to any 110 V (220 V) outlet at night and travel these short daytime trips on battery power alone. On longer trips, the engine/alternator could augment the battery and maintain the battery charge. By refuelling every 400 miles like a conventional vehicle, trips of unlimited length are possible.

Because such HEVs could be used on all trips, the initial miles of every day's travel would be on electricity. BOEV's, on the other hand, could be used only on trips within battery range. On longer trips, the driver would need to use a conventional vehicle.

Based upon this "driver level" analysis and using nationwide travel statistics from the 1990 National Personal Transportation Survey, the study reveals that two HEVs with only a 15-mile battery range would travel, on average, more annual miles on electricity than one 100-mile battery-only electric vehicle (BOEV). On longer trips such HEVs with finely-tuned APUs operating at steady load are likely to operate with much lower emissions than comparable ICE-powered conventional vehicles. Because of these benefits, the report argues that such HEVs should be accorded ZEV (zero-emission vehicle) credit on the basis of their ability to "electrify miles".

HEVs could offer the same performance, range and "full-tank" feeling of security as conventional vehicles. Yet they are likely to cost less than BOEVs. In mass-production, such HEVs might compete in cost with conventional ICE-powered vehicles. Under those circumstances, such HEVs could gain significant and perhaps dominant market share. (Auth)  
Section Name : Vehicles, Design and Performance  
Subject Heading: Vehicles - Design and Performance

14/5/21 (Item 5 from file: 81)  
DIALOG(R)File 81:MIRA - Motor Industry Research

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90152

Adaptive Control of an EV Drive System to Account for Time-Varying  
Battery Parameters

KOF C

Corporate Source: Unique Mobility Inc  
The 12th Intl Electric Veh Symp - EVS-12, 5-7 Dec 94  
December 5, 1994

Page : 1  
Collation : (10 p, 7 fig)

Document Type: JOURNAL

Record Type: ABSTRACT

Supplier Record Type: AA

Unique Mobility have developed an electric vehicle drive system which is being used in the BMW E1. This system is comprised of a permanent magnet brushless DC motor, amplifier, and microprocessor controller. The system is capable of high torque (150 Nm) at low speeds ((less than) 2000 rpm) and constant power (32 kW) at higher speeds (to 8000 rpm). The design of the system utilizes a six step drive in combination with a microprocessor control. The topology of the drive was designed to operate smoothly while making the transition between different regions of operation. The controller must also regulate the torque to stay within all of the safety limits, two of which are under voltage and over voltage. The under voltage limit is used to prevent fully discharging the batteries to prolong their life, and the over voltage limit is necessary to protect the power devices in the amplifier and/or prevent outgassing of the battery. The maximum voltage from the motor in regeneration is a function of the regenerated current, the internal battery impedance in regeneration, and the open circuit bus voltage. The open circuit bus voltage and the internal battery impedance in regeneration varies with each different battery technology, and the batteries' short and long term charge/discharge history. The described drive system adapts to any battery technology by limiting the user to only the maximum instantaneous power that the battery can provide (in motoring) or accept (in regeneration).

Section Name : Components

Subject Heading: TRANSMISSION

## B. NPL Files, Full-text

File 610:Business Wire 1999-2009/Oct 23

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File 634:San Jose Mercury Jun 1985-2009/Oct 18

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File 810:Business Wire 1986-1999/Feb 28

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File 813:PR Newswire 1987-1999/Apr 30

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     (c) 2009 Dialog  
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     (c) 2009 ProQuest Info&Learning  
 File 624:McGraw-Hill Publications 1985-2009/Oct 23  
     (c) 2009 McGraw-Hill Co. Inc  
 File 9:Business & Industry(R) Jul/1994-2009/Oct 22  
     (c) 2009 Gale/Cengage  
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     (c) 2009 Gale/Cengage  
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     (c) 2009 Gale/Cengage  
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 File 621:Gale Group New Prod.Annou.(R) 1985-2009/Sep 15  
     (c) 2009 Gale/Cengage  
 File 636:Gale Group Newsletter DB(TM) 1987-2009/Sep 29  
     (c) 2009 Gale/Cengage  
 File 748:Asia/Pac Bus. Jrnls 1994-2005/Dec 13  
     (c) 2005 Dialog  
 File 728:Asia/Pac News 1994-2005/Dec W2  
     (c) 2005 Dialog

Set	Items	Description
S1	326635	(HYBRID OR ELECTRIC? OR BATTERY()POWER)(5N)(VEHICL? OR CAR OR CARS OR AUTO OR AUTOS OR AUTOMOBILE? OR TRUCK? OR SUV? OR - SEDAN? OR VAN? OR PICKUP? OR COUPE? OR MINIVAN? OR LORRY OR L- ORRIES)
S2	3932780	BATTERY OR BATTERIES OR CELL OR CELLS OR POWER()(SOURCE?? - OR SUPPLY OR SUPPLIES) OR (ENERGY OR ELECTRICAL)(2N)STORAGE
S3	101245	(CHARG? OR DISCHARG?)(5N)(HISTOR? OR RECORD OR RECORDS)
S4	392945	(UNIT OR UNITS)(5N)(CHARGE OR CHARGES OR ENERGY OR POWER)
S5	8680602	(COST? OR PRICE? OR EXPENSE?)(10N)(GENERAT? OR PRODUC? OR - CREAT? OR MAKE? OR MAKING OR YIELD?)
S6	0	S1(S)S2(S)S3(S)S4(S)S5
S7	8	S2(S)S3(S)S4
S8	135	S2(S)S3(S)S5
S9	4	S8(S)S1
S10	81961	S1(S)S2
S11	95	S10(S)S3
S12	102	S10(S)S4(S)S5
S13	4	S11(S)(S4 OR S5)
S14	197	S11 OR S12
S15	134	S14(S)POWER?
S16	14	S1(20N)S2(20N)S3(20N)(S4 OR S5)
S17	74990	S1(20N)S2
S18	2505	S3(30N)(S4 OR S5)
S19	3	S17(S)S18
S20	87	S1(20N)S2(20N)S3
S21	47	RD S20 (unique items)
S22	35	S21 NOT S21/2005:2009
S23	54	S7 OR S9 OR S13 OR S16 OR S19 OR S22
S24	41	S23 NOT (PY>2004 OR PD>20040224)
S25	38	RD (unique items)

25/3,K/1 (Item 1 from file: 613)  
DIALOG(R)File 613:PR Newswire  
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00351928 20000612LAM018 (USE FORMAT 7 FOR FULLTEXT)  
Edison International Unit Purchases Fast-Charge Technology from Norvik  
Traction, Inc.  
PR Newswire  
Monday, June 12, 2000 10:00 EDT  
JOURNAL CODE: PR LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
DOCUMENT TYPE: NEWSPRICE  
WORD COUNT: 738

...to maximize the speed at which we will continue to advance this technology," said Robert Field, general manager of Edison Norvik.

The Edison Minit-Charger already has a proven track record providing fast-charge solutions for forklifts, on-road electric vehicles, electric buses, as well as some smaller battery applications (including camcorders). Initial testing of fast-charging for forklifts began in 1996, and the chargers have now completed 150,000 shift hours of successful...

25/3,K/6 (Item 1 from file: 813)  
DIALOG(R)File 813:PR Newswire  
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1233044 LATU068  
Kummerow Corp. Signs Accord to Help Solve Shanghai's Air Pollution with Electric Motor Scooters

DATE: February 24, 1998 13:27 EST WORD COUNT: 734

... Kummerow. "To succeed in this market, an electric scooter must perform well and be available at a very low price. We believe that zinc-air battery technology is capable of meeting those challenges with further development."

Kummerow's zinc air batteries have already proved their performance by smashing the world record distance for an electric vehicle, running 1,043 miles on a single charge -- more than double the previous record for any type of battery. The same battery technology is powering an electric transit bus in a demonstration project in Singapore, as well as passenger and delivery vehicles in a Karlsruhe, Germany, pilot...

25/3,K/9 (Item 4 from file: 813)  
DIALOG(R)File 813:PR Newswire  
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0948847

DCM008

VIRGINIA POWER IS REGIONAL DISTRIBUTOR FOR MAGNE CHARGE(TM) INDUCTIVE CHARGING SYSTEM

DATE: May 13, 1996 10:31 EDT WORD COUNT: 916

...is inserted into a port on the vehicle.

The insertion sets up an interaction of magnetic fields that safely completes the circuit and transfers the energy into the batteries. The units have no exposed metal connections and can be used safely even during rain, fog and snow.

The MAGNE CHARGE(TM) family of chargers is rapidly developing a proven record of safety and dependability. Virginia Power's fleet of more than 40 electric cars and trucks uses MAGNE CHARGE(TM), as does the U.S. Postal Service's experimental electric vehicle program in Fairfax,

Va. Two other electric transportation programs planned for the Richmond area will also use MAGNE CHARGE(TM). These include Greater Richmond Transit...

25/3,K/10 (Item 5 from file: 813)

DIALOG(R)File 813:PR Newswire

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0826425 DE005

OVONIC NICKEL METAL HYDRIDE BATTERIES POWER ELECTRIC VEHICLE TO RECORD 238 MILES IN 1995 AMERICAN TOUR DE SOL RACE

DATE: May 30, 1995 09:46 EDT WORD COUNT: 423

...Company, Inc. ("Ovonic"), announced today that the Solectria Sunrise, an all new purpose-built four passenger electric sedan, powered by Ovonic nickel metal hydride ("NiMH") batteries, set a new record of 238 miles on a single charge in the 1995 American Tour De Sol, a race of 48 electric vehicles conducted over public roads under real driving conditions.

The Ovonic NiMH battery-powered Solectria Sunrise was the overall winner in every event in which it was entered during the five-day competition. This achievement of 238 miles on a single charge marks the second consecutive record set by a Solectria electric vehicle powered by Ovonic NiMH batteries. The previous record of 214 miles was set at last year's Tour de Sol. Other vehicles in the race were powered by a variety of batteries, including lead acid, nickel cadmium, sodium sulfur, etc. The Solectria Sunrise electric vehicle running on Ovonic NiMH batteries was the only vehicle to break the...

25/3,K/14 (Item 3 from file: 20)

DIALOG(R)File 20:Dialog Global Reporter

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07357752 (USE FORMAT 7 OR 9 FOR FULLTEXT)  
Cars grant powers up city electric bid  
HELEN WARD ENVIRONMENT CORRESPONDENT  
NOTTINGHAM EVENING POST , Nottingham Post Group - Evening Post (Late Final  
- LF) ed, p12  
September 18, 1999  
JOURNAL CODE: FNEP LANGUAGE: English RECORD TYPE: FULLTEXT  
WORD COUNT: 458

... chose Nottingham for the project because the city and county  
councils were forward looking, and it had a good relationship with them.

FACT FILE YEN Electric vehicles are powered by  
batteries stored inside the car. When the batteries need  
recharging you simply plug the car into a socket.

YEN An electric vehicle averages 40 to 100 miles per  
charge.

YEN The land speed record for an electric vehicle is  
183mph.

YEN Electric vehicles have no emissions.

YEN The electric car lost out to the petrol-driven car  
because of its limited range and invention of the electric starter motor -  
which meant engines no longer needed...

25/3,K/15 (Item 1 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
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02209054 77288730  
Is fast charging for you?  
Fearce, Tom  
Modern Materials Handling v56n9 PP: 47-51 Aug 2001  
ISSN: 0026-8038 JRNL CODE: MMH

ABSTRACT: Giving electric lift truck batteries a regimen of fast chargers can hike  
productivity and lower operating  
costs over the long term. Charging times of 6 to 8 hours followed by  
a cooldown period of as long as 8 hours are history with fast  
charging. PosiCharge says its multi-vehicle, parallel charging  
equipment will get batteries operational again as soon as 5 to 10  
minutes. Batteries undergoing fast charging also need time for daily  
full charge and for equalization charges. Typically, the equalization  
charge is applied at once weekly.

25/3,K/16 (Item 2 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2009 ProQuest Info&Learning. All rts. reserv.  
00965060 96-14453  
New strategy for lift truck management  
Schwind, Gene F  
Material Handling Engineering v50n1 PP: 83-98 Jan 1995  
ISSN: 0025-5262 JRNL CODE: MTH  
WORD COUNT: 5008

...TEXT: rather than using the longer vehicle serial number. Whenever you  
make a decision about a vehicle you must be able to locate it.

In fleets, batteries usually travel between trucks, so if batteries are to be tracked you must identify each one in some way. A device such as the Anderson Battery Data Recorder or C&D's SmartBattery can be permanently installed on the top of each battery. It records charge, discharge and other information. Tracking batteries is necessary because of their cost and potential for abuse--but few companies do it.

When you collect data on electric trucks, do not include the battery as part of the original cost of the truck. Likewise, when you record maintenance or replacement costs, do not ascribe battery costs to the truck...

25/3,K/17 (Item 3 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2009 ProQuest Info&Learning. All rts. reserv.  
00936248 95-85640  
Sima PowerMax-200 universal battery charger/conditioner  
Howat, Faris  
Cellular Business v11n10 PP: 82-86 Oct 1994  
ISSN: 0741-6520 JRNL CODE: CLB  
WORD COUNT: 1933

...TEXT: 1,100mAh NMH.

3. Testing of battery capacity under load for batteries charged with the PowerMax-200.

4. Testing trickle charge mode. NiCd and NMH batteries are considered discharged when each cell reaches approximately 1V per cell. Excessive discharging below this point can easily damage the battery. I connected a digital voltmeter with RS-232 capability to a laptop computer, and I measured and recorded voltage readings every 4 seconds. I placed each battery in the Sima PowerMax-200 unit to record the discharge and charge point voltage of each battery. By recording the discharge and charge point for each battery, I could easily view the actual charge time on the graphs. I then imported the collected data into ExCEL for graphic presentation....

25/3,K/18 (Item 4 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2009 ProQuest Info&Learning. All rts. reserv.  
00620481 92-35583  
Lift Truck Maintenance Lengthens Economic Life  
Schwind, Gene F.  
Material Handling Engineering v47n6 PP: 44-49 Jun 1992  
ISSN: 0025-5262 JRNL CODE: MTH  
WORD COUNT: 2913

...TEXT: around them are complex. They are expensive enough that the potential for savings with a thorough maintenance program is extremely high and easily justified. (See **Batteries: Boxes of Money**, page 45.)

Battery data should be kept by serial number and include purchase

date and cost. Additional fields (in the database) include charge history, hydrometer readings, repairs, charger used and other pertinent information. For electric trucks, battery mismanagement can be the greatest single cost in the maintenance picture. Foreshortened battery life is an insidious cost that may never be recognized unless accurate records are maintained. For more information, see the literature focus is on page...

25/3,K/19 (Item 5 from file: 15)  
DIALOG(R)File 15:ABI/Inform(R)  
(c) 2009 ProQuest Info&Learning. All rts. reserv.  
00073755 78-08086  
The Best Battery Care Takes Four Jobs-Not One!  
Modern Materials Handling v33n4 PP: 70-76 April 1978  
ISSN: 0026-8038 JRNL CODE: MMH

**ABSTRACT:** Maximum life and performance for industrial truck batteries demands specific responsibility from people in 4 functions: truck operation, charging operation, maintenance, and outside service. The right attention from these people can save hundreds or thousands of dollars. Truck operators are responsible for conserving battery power, checking battery and cable connections, checking the maintenance schedule, and reporting changes requiring more power, such as heavier loads. The charging attendant is responsible for charging batteries, adding water, keeping records on charging cycles, and routinely checking batteries, power cables, and connectors. The maintenance man does the routine maintenance and repair. He checks over "wet batteries" when they are received, and does a...

25/3,K/22 (Item 1 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)  
(c) 2009 Gale/Cengage. All rts. reserv.  
04377545 Supplier Number: 46420058 (USE FORMAT 7 FOR FULLTEXT)  
NEW BATTERIES POWER ELECTRIC VEHICLE TO WORLD DISTANCE RECORD  
PR Newswire, p0529DEW007  
May 29, 1996  
Language: English Record Type: Fulltext  
Document Type: Newswire; Trade  
Word Count: 438

"For the third year in a row, an electric vehicle powered by nickel metal hydride batteries set a distance record on a single charge while finishing first in the American Tour de Sol road rally. That performance milestone - 373 miles - was clocked during this month's New York-to-Washington D.C. rally.

"The Tour de Sol showcases advancements in electric vehicle technologies as competitors demonstrate enhancements in the range, energy efficiency and reliability of these cars. It also shows how public-private partnerships can help assure...

25/3,K/23 (Item 2 from file: 16)  
DIALOG(R)File 16:Gale Group PROMT(R)

(c) 2009 Gale/Cengage. All rts. reserv.

03044475      Supplier Number: 44140928  
Electric dreams take to the road  
New Scientist, p38  
Oct 2, 1993  
Language: English      Record Type: Abstract  
Document Type: Magazine/Journal; Academic

ABSTRACT:

Tokyo Electric Power (Japan) has developed a prototype electric car, the IZA, that runs a record 550 km on a single charge and has a top speed of 176 km/hr. The IZA's motors are embedded in the wheels. Currently the fastest electric car in the world, the vehicle is powered by a 500-kg nickel-cadmium battery that serves the front and back wheels separately. As the driver uses the accelerator and brake pedal, signals are transmitted to a computerized systems controller...

25/3,K/27      (Item 2 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c) 2009 Gale/Cengage. All rts. reserv.  
07064371      SUPPLIER NUMBER: 14809564  
Batteries charged quickly, electric truck sets record. (Electronic Power Technology Inc. tests new battery charging system)  
Wald, Matthew L.  
New York Times, v143 , Wed ed, col 1, pC1(N) pD1(L)  
Feb 16, 1994  
ISSN: 0362-4331      LANGUAGE: ENGLISH      RECORD TYPE: CITATION

Batteries charged quickly, electric truck sets record. (Electronic Power Technology Inc. tests new battery charging system)

25/3,K/28      (Item 3 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c) 2009 Gale/Cengage. All rts. reserv.  
05897476      SUPPLIER NUMBER: 12429173      (USE FORMAT 7 OR 9 FOR FULL TEXT)  
Lift truck maintenance lengthens economic life. (includes related articles)  
(Technology) (Cover Story)  
Schwind, Gene F.  
Material Handling Engineering, v47, n6, p44(5)  
June, 1992  
DOCUMENT TYPE: Cover Story      ISSN: 0025-5262      LANGUAGE: ENGLISH  
RECORD TYPE: FULLTEXT  
WORD COUNT: 3097      LINE COUNT: 00242

... revolve around them are complex. They are expensive enough that the potential for savings with a thorough maintenance program is extremely high and easily justified.

Battery data should be kept by serial number and include purchase date and cost. Additional fields (in the database) include charge history, hydrometer readings, repairs, charger

used and other pertinent information. For electric trucks, battery mismanagement can be the greatest single cost in the maintenance picture. Foreshortened battery life is an insidious cost that may never be recognized unless accurate records are maintained.

Batteries: boxes of money

Batteries of any size look monolithic. Unless you're one of the more astute material managers, you don't realize how much batteries cost, how long...

25/3,K/29 (Item 4 from file: 148)  
DIALOG(R)File 148:Gale Group Trade & Industry DB  
(c) 2009 Gale/Cengage. All rts. reserv.  
05576900 SUPPLIER NUMBER: 11791447 (USE FORMAT 7 OR 9 FOR FULL TEXT)  
Electric vehicles: getting the lead out.  
Suru, Bill  
Mechanical Engineering-CIME, v113, n12, p36(6)  
Dec, 1991  
ISSN: 0025-6501 LANGUAGE: ENGLISH RECORD TYPE: FULLTEXT  
WORD COUNT: 4553 LINE COUNT: 00358

... in locations from car dealerships to supermarkets. The rechargers would be activated by a "smart card" that would contain a record of the car's battery, history, and specifications. The driver would insert the card and the recharger would work automatically. The card would also be used to record charges for energy supplied.

Nissan has designed an urban electric car called the Future Electric Vehicle (FEV) around the new Super Quick Charging Battery System. The FEV is a 2+2 coupe with room for two adults, two children, and luggage. The car is only 13 feet long riding...

25/3,K/32 (Item 3 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2009 Gale/Cengage. All rts. reserv.  
03136981 Supplier Number: 46420885 (USE FORMAT 7 FOR FULLTEXT)  
Ovonic to Up Electrode Material Production  
Electric Vehicles Energy Network Online Today, pN/A  
May 30, 1996  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Trade  
Word Count: 317

... D.C.

A Solectria Sunrise purpose-built, full-size EV achieved 373 miles on a single charge according to official race results.

The Ovonic NiMH battery pack provided 32 kilowatt hours (kWh) of power at 252 volts.

Another Solectria-built vehicle, a converted Geo Metro four-door sedan, competing in the production vehicle category used Ovonic batteries to achieve a record 244 miles on a single charge. The car's battery pack provided 23 kWh of power at 196 volts.

Solectria is a manufacturer of EV motors and controls and electric vehicles located in Wilmington, MA.

For more information, contact Stanford Ovshinsky or Robert Stempel at

810-280-1900.

(ECD RELEASE: 5/24)

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25/3,K/33 (Item 4 from file: 636)

DIALOG(R)File 636:Gale Group Newsletter DB(TM)

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03129089 Supplier Number: 46402189 (USE FORMAT 7 FOR FULLTEXT)

DARPA DISPLAYS HYBRID AND ELECTRIC VEHICLE TECHNOLOGY IN D.C.

Technology Transfer Week, v3, n21, pN/A

May 21, 1996

Language: English Record Type: Fulltext

Document Type: Magazine/Journal; Trade

Word Count: 732

TEXT:

...program showed its wares at the Tour del Sol road-race finish line on the Mall in Washington, D.C. Tour Del Sol features solar-electric cars and HEVs, several with DARPA technology for stealthy scout vehicles, electrically driven tanks and electric flight controls. The race winner, which ran a world-record 374 miles on one battery charge, was a sleek composite compact from Solectria Corp., Wilmington, Mass. It used nickel metal hydride batteries from Energy Conversion Devices' Ovonic Battery Co., which will also go to market next year on an Impact-class Honda EV.

25/3,K/35 (Item 6 from file: 636)

DIALOG(R)File 636:Gale Group Newsletter DB(TM)

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02683673 Supplier Number: 45443834 (USE FORMAT 7 FOR FULLTEXT)

Fuel Gage Meets Special Needs

Battery & EV Technology, v19, n12, pN/A

April, 1995

Language: English Record Type: Fulltext

Document Type: Newsletter; Trade

Word Count: 212

TEXT:

...Curtis Instruments Inc. (200 Kisco Ave., Mount Kisco, NY 10549; Tel: 914/666-2971, Fax: 914/666-2188) says that the company now has a battery "fuel" gage designed to meet the special needs of on-road electric cars and trucks (whose batteries remain in the vehicles during charging). The Model 968 includes a current integrator which employs a microprocessor that records both the charge and discharge cycles and displays battery capacity.

25/3,K/37 (Item 8 from file: 636)

DIALOG(R)File 636:Gale Group Newsletter DB(TM)

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01985517 Supplier Number: 43556896 (USE FORMAT 7 FOR FULLTEXT)

Chrysler To Market State-of-the-Art Industrial EV Battery Charger

Battery & EV Technology, v16, n9, pN/A

Jan, 1993

Language: English Record Type: Fulltext

Document Type: Newsletter; Trade  
Word Count: 275

... delayed) General Motors Impact program. Norwick is a leading North American battery charging concern, best known for developing and marketing home appliance and video camera batteries. The charging system works with a variety of advanced secondary batteries, including lead-acid, nickel-cadmium, and nickel-metal hydride. The present model can be configured to charge many existing EV batteries in as little as 25 minutes. Work is underway to improve this performance using advanced computerized charge controllers.

Jiri Nor, Norwick's vice president of R&D says that, "With the right combination of battery and charge control technology, we can refuel electric cars as fast as we now pump gasoline." Chrysler plans on incorporating advanced smart charging technology into its electric vehicles. Advanced smart charging could include options like billing record keeping. Prototype chargers now cost \$160,000 each. Economics of scale should bring this down to about \$10,000. Chrysler's marketing plan calls for commercialization in 1995...

...be located in service stations, configured similar to gasoline pumps. Chrysler has no plans to market a residential version of the charger because of the unit's high power requirements. Chrysler reports that the Norwick charging system can also be configured to be compatible with the GM/Hughes Electronics charging system.

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25/3,K/38 (Item 9 from file: 636)  
DIALOG(R)File 636:Gale Group Newsletter DB(TM)  
(c) 2009 Gale/Cengage. All rts. reserv.  
01942773 Supplier Number: 42242808 (USE FORMAT 7 FOR FULLTEXT)  
Alpine Solar Car Championships To Be Held in Switzerland  
International Solar Energy Intelligence Report, v17, n15, pN/A  
July 26, 1991  
Language: English Record Type: Fulltext  
Document Type: Magazine/Journal; Newsletter; Trade  
Word Count: 263

... In other news, an electric broke a distance record in Liesal, Canton Basel, in June by running for 256 kilometers (159 miles) on a single charge of its batteries. The previous record for this type of car was 152 km (94 miles). The batteries used in the record run are not on the market yet.

Meanwhile, with an eye to ecology, Geneva's maintenance crews at Services Industriel, the municipal power administration, have added two electric cars to their fleet and plan to add a third. The cars run on batteries charged by plugging into solar-panel-topped columns located around the...

## V. Additional Resources Searched

#	Query	Limiters/ Expanders	Last Run Via	Results
S4	TX batter* and TX ( vehicle? or car? or auto? or automobile? ) and TX ( charg* and discharg* ) and SO financial times	Search modes - Boolean/Phrase	Interface - EBSCOhost Search Screen - Advanced Search Database - Academic Search Premier	0
S3	TX batter* and TX ( vehicle? or car? or auto? or automobile? ) and TX ( charg* and discharg* )	Limiters - Date Published from: 19500101-20040331 Search modes - Boolean/Phrase	Interface - EBSCOhost Search Screen - Advanced Search Database - Internet and Personal Computing Abstracts	1
S2	TX ( hybrid or electric ) and TX ( vehicle? or car? or auto? or automobile? ) and TX ( charg* and discharg* ) and TX batter*	Limiters - Date Published from: 19500101-20040331 Search modes - Boolean/Phrase	Interface - EBSCOhost Search Screen - Advanced Search Database - Internet and Personal Computing Abstracts	0
S1	TX ( hybrid or electric or (battery w1 powered) ) and TX ( vehicle? or car? or auto? or automobile? ) and TX ( charg* and discharg* )	Limiters - Date Published from: 19500101-20040331 Search modes - Boolean/Phrase	Interface - EBSCOhost Search Screen - Advanced Search Database - Internet and Personal Computing Abstracts	0

**Title:** Inline's PBTools takes the road less traveled.

**Authors:** Coleman, Dale

**Source:** MacWeek; March 1, 1993, Vol. 7 Issue 9, p41-43, 3p

**Document Type:** Product Review

**Subject Terms:**

POWER resources  
UTILITIES (Computer programs)  
MACINTOSH (Computer)  
LAPTOP computers

**Geographic Terms:** UNITED States

**Author-Supplied Keywords:** PBTools, Inline Design

**Abstract:**

Presents a favorable review of PBTools 1.0.1 (\$99.95), an energy maintenance program from Inline Design of Lakeville, CT. Runs on Macintosh PowerBook machines. Says PBTools features an indicator for battery or AC power source, an indicator for fast or trickle charging, a battery charge indicator for up to nine levels of charge, a chart for displaying actual battery voltage, double-battery tracking, and a Deep Discharge Battery option; but documentation has some errors. Given a rating of "Very Good." Includes three screen displays, a score card, and a table.

**Notes:**

Product Rating: PBTools: B  
System Compatibility: PowerBook

**ISSN:**

0892-8118

**Accession Number:**

IPCA0343503

**Persistent link to this record (Permalink):**

<http://search.ebscohost.com/login.aspx?direct=true&db=iqh&AN=IPCA0343503&site=ehost-live>